National Curriculum Framework 2005

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FOREWORD

I have had the privilege of participating in a remarkable process of social deliberation initiated by NCERT to focus public attention on what should be taught to our children and how. In the course of this wide-ranging churning of ideas and expectations, I have worked closely with a large number of very special individuals for the preparation of the National Curriculum Framework presented in this document. The names of these individuals are given in this document.

There is much analysis and a lot of advice. All this is accompanied by frequent reminders that specificities matter, that the mother tongue is a critical conduit, that social, economic and ethnic backgrounds are important for enabling children to construct their own knowledge. Media and educational technologies are recognised as significant, but the teacher remains central. Diversities are emphasised but never viewed as problems. There is a continuing recognition that societal learning is an asset and that the formal curriculum will be greatly enriched by integrating with that. There is a celebration of plurality and an understanding that within a broad framework plural approaches would lead to enhanced creativity.

The document frequently revolves around the question of curriculum load on children. In this regard we seem to have fallen into a pit. We have bartered away understanding for memory-based, short-term information accumulation. This must be reversed, particularly now that the mass of what could be memorised has begun to explode. We need to give our children some taste of understanding, following which they would be able to learn and create their own versions of knowledge as they go out to meet the world of bits, images and transactions of life. Such a taste would make the present of our children wholesome, creative and enjoyable; they would not be traumatised by the excessive burden of information that is required merely for a short time before the hurdle race we call examination. The document suggests some ways of getting out of this self-imposed adversity. Achieving some degree of success in this area would also signify that we have learnt to appreciate the capacity for learning and the futility of filling up children's memory banks with information that is best kept as ink marks on paper or bits on a computer disc.

Education is not a physical thing that can be delivered through the post or through a teacher. Fertile and robust education is always created, rooted in the physical and cultural soil of the child, and nourished through interaction with parents, teachers, fellow students and the community. The role and dignity of teachers in this function must be strengthened and underlined. There is a mutuality to the genuine construction of knowledge. In this

transaction the teacher also learns if the child is not forced to remain passive. Since children usually perceive and observe more than grown-ups, their potential role as knowledge creators needs to be appreciated. From personal experience I can say with assurance that a lot of my limited understanding is due to my interaction with children. The document does dwell on this aspect.

The rich and comprehensive nature of this document would not have been achieved without a special ignition that enveloped all those who got involved. I do not know who struck the spark — perhaps it was no one in particular. Perhaps the effort happened at a point in time when a critical mass of discomfort had accumulated. Enough is enough, was the feeling amongst most of the participants. Perhaps the enthusiasm of a few was infectious.

It was tempting to assign blame for many things that have not gone as well as we wished many decades ago. We have tried to avoid playing the blame game – perhaps due to the fact that we are all responsible in one way or another. Most of us are responsible as members of a middle class that had begun to emotionally secede from the mass of people in the country. I was struck by the frequency of words like 'pluralism', 'equity' and 'equality' during our discussions. I do not believe that they are part of a political rhetoric, because we talked very little politics in our extensive discussions. I believe this came about because we were led to a conviction that our strength lies in the presently deprived three-fourths of our people. Marrying their socially acquired competences and skills with academic pursuits in our educational institutions would lead to a special flowering of talent and skills.

The document suggests ways of moving in that direction. Some of the systemic changes suggested would definitely help. I hope we can become operational on ideas of a common school system, work and education, and letting children enter the world of formal learning through the language of their home and environment.

We do not feel daunted by the task. We feel it is doable. I hope this effort might start a freedom movement for the education of our young — away from some of the tyrannies in which we have enveloped ourselves.

Yash Pal

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National Curriculum Framework (NCF) 2005 owes its present shape and form to the flurry of ideas generated through a series of intensive deliberations by eminent scholars from different disciplines, principals, teachers and parents, representatives of NGOs, NCERT faculty, and several other stakeholders at various levels. It received significant contributions from state Secretaries of Education and Directors of SCERTs, and participants of the regional seminars organised at the RIEs. Experiences shared by principals of private schools and Kendriya Vidyalayas and by teachers of rural schools across the country helped in sharpening our ideas. Voices of thousands of people—students, parents, and public at large—through regular mail and electronic media helped in mapping multiple viewpoints.

The document has benefited immensely from a generous flow of constructive suggestions and perceptive comments from members of NCERT's own establishment and its higher-level committees, i.e. Executive Committee, General Council and Central Advisory Board of Education. State governments were specifically requested to organise workshops to discuss the draft NCF during July-August 2005, and we are grateful for the reports received from several states and the Azim Premji Foundation which organised a seminar in collaboration with the governments of Madhya Pradesh, Rajasthan, etc. Discussions were also organised by Kerala Sastra Sahithya Parishad (Trichur) and All India People's Science Network (Trichur), Bharat Gyan Vigyan Samiti (New Delhi), SIEMAT (Patna), The Concerned for Working Children, Bangalore, Trust for Educational Integrated Development (Ranchi), Koshish Charitable Trust (Patna), and Digantar (Jaipur). The Council for Indian School Certificate Examination (New Delhi), Central Board of Secondary Education (New Delhi), Boards of Secondary Education of States, Council of Boards of School Education (COBSE) in India (New Delhi) actively helped us in the crystallization of our ideas. Sincere acknowledgement for hosting meetings is due to the Academic Staff College of India, Hyderabad; Homi Bhabha Centre for Science Education, Mumbai; Jadavpur University, Kolkata; Ali Yavar Jung National Institute of Hearing Handicapped, Mumbai; National Institute of Mental Health, Secunderabad; M.V. Foundation, Secunderabad; Sewagram, Wardha; National Institute of Public Cooperation and Child Development, Guwahati; State Council of Educational Research and Training, Thiruvananthapuram, Central Institute of English and Foreign Languages, Hyderabad, Central Institute of Indian Languages, Mysore; National Institute of Design, Ahmedabad; SMYM Samiti, Lonawala, Pune; North Eastern Hill University, Shillong; DSERT, Bangalore; IUCAA, Pune; Centre for Environment Education, Ahmedabad and Vijay Teachers College, Bangalore.

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The list is by no means exhaustive, and we are grateful to all those who contributed in the making of the document.

EXECUTIVE SUMMARY

The Executive Committee of NCERT had taken the decision, at its meeting held on 14 and 19 July 2004, to revise the National Curriculum Framework, following the statement made by the Hon'ble Minister of Human Resource Development in the Lok Sabha that the Council should take up such a revision. Subsequently, the Education Secretary, Ministry of HRD communicated to the Director of NCERT the need to review the National Curriculum Framework for School Education (NCFSE – 2000) in the light of the report, *Learning Without Burden* (1993). In the context of these decisions, a National Steering Committee, chaired by Prof. Yash Pal, and 21 National Focus Groups were set up. Membership of these committees included representatives of institutions of advanced learning, NCERT's own faculty, school teachers and non-governmental organisations. Consultations were held in all parts of the country, in addition to five major regional seminars held at the NCERT's Regional Institute of Education in Mysore, Ajmer, Bhopal, Bhubaneswar and Shillong. Consultations with state Secretaries, SCERTs and examination boards were carried out. A national conference of rural teachers was organised to seek their advice. Advertisements were issued in national and regional newspapers inviting public opinion, and a large number of responses were received.

The revised National Curriculum Framework (NCF) opens with a quotation from Rabindranath Tagore's essay, *Civilisation and Progress,* in which the poet reminds us that a 'creative spirit' and 'generous joy' are key in childhood, both of which can be distorted by an unthinking adult world. The opening chapter discusses curricular reform efforts made since Independence. The National Policy on Education (NPE, 1986) proposed the National Curriculum Framework as a means of evolving a national system of education, recommending a core component derived from the vision of national development enshrined in the Constitution. The Programme of Action (POA, 1992) elaborated this focus by emphasising relevance, flexibility and quality.

Seeking guidance from the Constitutional vision of India as a secular, egalitarian and pluralistic society, founded on the values of social justice and equality, certain broad aims of education have been identified in this document. These include independence of thought and action, sensitivity to others' well-being and feelings, learning to respond to new situations in a flexible and creative manner, predisposition towards participation in democratic processes, and the ability to work towards and contribute to economic processes and social change. For teaching to serve as a means of strengthening our democratic way of life, it must respond to the presence of first generation school-goers, whose retention is imperative owing to the Constitutional amendment that has made

elementary education a fundamental right of every child. Ensuring health, nutrition and an inclusive school environment empowering all children in their learning, across differences of caste, religion, gender, disability, is enjoined upon us by the Constitutional amendment. The fact that learning has become a source of burden and stress on children and their parents is an evidence of a deep distortion in educational aims and quality. To correct this distortion, the present NCF proposes five guiding principles for curriculum development: (i) connecting knowledge to life outside the school; (ii) ensuring that learning shifts away from rote methods; (iii) enriching the curriculum so that it goes beyond textbooks; (iv) making examinations more flexible and integrating them with classroom life; and (v) nurturing an overriding identity informed by caring concerns within the democratic polity of the country.

All our pedagogic efforts during the primary classes greatly depend on professional planning and the significant expansion of Early Childhood Care and Education (ECCE). Indeed, the revision of primary school syllabi and textbooks needs to be undertaken in the light of the well-known principles of ECCE. The nature of knowledge and children's own strategies of learning are discussed in Chapter 2, which formulates a theoretical basis for the recommendations made in Chapter 3 in the different curricular areas. The fact that knowledge is constructed by the child implies that curricula, syllabi and textbooks should enable the teacher in organising classroom experiences in consonance with the child's nature and environment, and thus providing opportunities for all children. Teaching should aim at enhancing children's natural desire and strategies to learn. Knowledge needs to be distinguished from information, and teaching needs to be seen as a professional activity, not as coaching for memorisation or as transmission of facts. Activity is the heart of the child's attempt to make sense of the world around him/her. Therefore, every resource must be deployed to enable children to express themselves, handle objects, explore their natural and social milieu, and to grow up healthy. If children's classroom experiences are to be organised in a manner that permits them to construct knowledge, then our school system requires substantial systemic reforms (Chapter 5) and reconceptualisation of curricular areas or school subjects (Chapter 3) and resources to improve the quality of the school ethos (Chapter 4).

In all the four familiar areas of the school curriculum, i.e. language, mathematics, science and social sciences, significant changes are recommended with a view to making education more relevant to the present day and future needs, and in order to alleviate the stress with which children are coping today. This NCF recommends the softening of subject boundaries so that children can get a taste of integrated knowledge and the joy of understanding. In addition, plurality of textbooks and other material, which could incorporate local knowledge and traditional skills, and a stimulating school environment

that responds to the child's home and community environment, are also suggested. In language, a renewed attempt to implement the three-language formula is suggested, along with an emphasis on the recognition of children's mother tongues, including tribal languages, as the best medium of education. The multilingual character of Indian society should be seen as a resource to promote multilingual proficiency in every child, which includes proficiency in English. This is possible only if learning builds on a sound language pedagogy in the mother tongue. Reading and writing, listening and speech, contribute to the child's progress in all curricular areas and must be the basis for curriculum planning. Emphasis on reading throughout the primary classes is necessary to give every child a solid foundation for school learning.

The teaching of mathematics should enhance the child's resources to think and reason, to visualise and handle abstractions, to formulate and solve problems. This broad spectrum of aims can be covered by teaching relevant and important mathematics embedded in the child's experience. Succeeding in mathematics should be seen as the right of every child. For this, widening its scope and relating it to other subjects is essential. The infrastructural challenge involved in making available computer hardware, and software and connectivity to every school should be pursued.

The teaching of science should be recast so that it enables children to examine and analyse everyday experiences. Concerns and issues pertaining to the environment should be emphasised in every subject and through a wide range of activities involving outdoor project work. Some of the information and understanding flowing from such projects could contribute to the elaboration of a publicly accessible, transparent database on India's environment, which would in turn become a most valuable educational resource. If well planned, many of these student projects could lead to knowledge generation. A social movement along the lines of *Children's Science Congress* should be visualised in order to promote discovery learning across the nation, and eventually throughout South Asia.

In the social sciences, the approach proposed in the NCF recognises disciplinary markers while emphasising integration on significant themes, such as water. A paradigm shift is recommended, proposing the study of the social sciences from the perspective of marginalised groups. Gender justice and a sensitivity towards issues related to SC and ST communities and minority sensibilities must inform all sectors of the social sciences. Civics should be recast as political science, and the significance of history as a shaping influence on the child's conception of the past and civic identity should be recognised.

This NCF draws attention to four other curricular areas: work, the arts and heritage crafts, health and physical education, and peace. In the context of work, certain radical steps to link learning with work from the primary stage upwards are suggested on the

ground that work transforms knowledge into experience and generates important personal and social values, such as self-reliance, creativity and cooperation. It also inspires new forms of knowledge and creativity. At the senior level, a strategy to formally recognise out-of-school resources for work is recommended to benefit children who opt for livelihood-related education. Such out-of-school agencies need accreditation so that they can provide 'work benches' where children can work with tools and other resources. Craft mapping is recommended to identify zones where vocational training in craft forms involving local craftpersons can be made available to children.

Art as a subject at all stages is recommended, covering all four major spheres, i.e. music, dance, visual arts and theatre. The emphasis should be on interactive approaches, not instruction, because the goal of art education is to promote aesthetic and personal awareness and the ability to express oneself in different forms. The importance of India's heritage crafts, both in terms of their economic and aesthetic values, should be recognised as being relevant to school education.

The child's success at school depends on nutrition and well-planned physical activity programmes, hence resources and school time must be deployed for the strengthening of the midday meal programme. Special efforts are needed to ensure that girls receive as much attention in health and physical education programmes as boys from the pre-school stage upwards.

Peace as a precondition for national development and as a social temper is proposed as a comprehensive value framework that has immense relevance today in view of the growing tendency across the world towards intolerance and violence as a way of resolving conflicts. The potential of peace education for socialising children into a democratic and just culture can be actualised through appropriate activities and a judicious choice of topics in all subjects and at all stages. Peace education as an area of study is recommended for inclusion in the curriculum for teacher education.

The school ethos is discussed as a dimension of the curriculum as it predisposes the child towards the aims of education and strategies of learning necessary for success at school. As a resource, school time needs to be planned in a flexible manner. Locally planned and flexible school calendars and time tables which permit time slots of different lengths required for different kinds of activities, such as project work and outdoor excursions to natural and heritage sites, are recommended. Efforts are required for preparing more learning resources for children, especially books and reference materials in regional languages, for school and teacher reference libraries, and for access to interactive rather than disseminative technologies. The NCF emphasises the importance of multiplicity and fluidity

of options at the senior secondary level, discouraging the entrenched tendency to place children in fixed streams, and limiting opportunities of children, especially from the rural areas.

In the context of systemic reforms, this document emphasises strengthening *Panchayati Raj* institutions by the adoption of a more streamlined approach to encourage community participation as a means of enhancing quality and accountability. A variety of school-based projects pertaining to the environment could help create the knowledge base for the *Panchayati Raj* institutions to better manage and regenerate local environmental resources. Academic planning and leadership at the school level is essential for improving quality and strategic differentiation of roles is necessary at block and cluster levels. In teacher education, radical steps are required to reverse the recent trend towards the dilution of professional norms as recommended by the Chattopadhyaya Commission (1984). Pre-service training programmes need to be more comprehensive and lengthy, incorporating sufficient opportunities for observation of children and integration of pedagogic theory with practice through school internship.

Examination reforms constitute the most important systemic measure to be taken for curricular renewal and to find a remedy for the growing problem of psychological pressure that children and their parents feel, especially in Classes X and XII. Specific measures include changing the typology of the question paper so that reasoning and creative abilities replace memorisation as the basis of evaluation, and integration of examinations with classroom life by encouraging transparency and internal assessment. The stress on pre-board examinations must be reversed, and strategies enabling children to opt for different levels of attainment should be encouraged to overcome the present system of generalised classification into 'pass' and 'fail' categories.

Finally, the document recommends partnerships between the school system and other civil society groups, including non-governmental organisations and teacher organisations. The innovative experiences already available should be mainstreamed, and awareness of the challenges implied in the Universalisation of Elementary Education (UEE) should become a subject of wide-ranging cooperation between the state and all agencies concerned about children.

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CONTENTS

FOREWORD			**iii**
ACKNOWLEDGEMENTS			**v**
EXECUTIVE SUMMARY			**vii**
MEMBERS OF THE NATIONAL STEERING COMMITTEE			**xii**
1.	**Perspective**		**1**
	1.1	Introduction	1
	1.2	Retrospect	3
	1.3	National Curriculum Framework	4
	1.4	Guiding Principles	4
	1.5	The Quality Dimension	7
	1.6	The Social Context of Education	9
	1.7	Aims of Education	10
2.	**Learning and Knowledge**		**12**
	2.1	Primacy of the Active Learner	12
	2.2	Learners in Context	13
	2.3	Development and Learning	14
	2.4	Implications for Curriculum and Practice	17
	2.4.1	*Teaching for Construction of Knowledge*	
	2.4.2	*The Value of Interactions*	
	2.4.3	*Designing Learning Experiences*	
	2.4.4	*Approaches to Planning*	
	2.4.5	*Critical Pedagogy*	
	2.5	Knowledge and Understanding	24
	2.5.1	*Basic Capabilities*	
	2.5.2	*Knowledge in Practice*	
	2.5.3	*Forms of Understanding*	
	2.6	Recreating Knowledge	29
	2.7	Children's Knowledge and Local Knowledge	30
	2.8	School Knowledge and the Community	32
	2.9	Some Developmental Considerations	33
3.	**Curricular Areas, School Stages and Assessment**		**35**
	3.1	Language	36
	3.1.1	*Language Education*	
	3.1.2	*Home/First Language(s) or Mother Tongue Education*	
	3.1.3	*Second Language Acquisition*	
	3.1.4	*Learning to Read and Write*	
	3.2	Mathematics	42
	3.2.1	*Vision for School Mathematics*	
	3.2.2	*The Curriculum*	
	3.2.3	*Computer Science*	
	3.3	Science	46
	3.3.1	*The Curriculum at different Stages*	
	3.3.2	*Outlook*	

	3.4	Social Sciences	50
	3.4.1	*The Proposed Epistemological Frame*	
	3.4.2	*Planning the Curriculum*	
	3.4.3	*Approaches to Pedagogy and Resources*	
	3.5	Art Education	54
	3.6	Health and Physical Education	56
	3.6.1	*Strategies*	
	3.7	Work and Education	58
	3.8	Education for Peace	61
	3.8.1	*Strategies*	
	3.9	Habitat and Learning	64
	3.10	Schemes of Study and Assessment	65
	3.10.1	*Early Childhood Education*	
	3.10.2	*Elementary School*	
	3.10.3	*Secondary School*	
	3.10.4	*Higher Secondary School*	
	3.10.5	*Open Schooling and Bridge Schooling*	
	3.11	Assessment and Evaluation	71
	3.11.1	*The Purpose of Assessment*	
	3.11.2	*Assessing Learners*	
	3.11.3	*Assessment in the Course of Teaching*	
	3.11.4	*Curricular Areas that Cannot be 'Tested for Marks'*	
	3.11.5	*Design and Conduct of Assessment*	
	3.11.6	*Self-assessment and Feedback*	
	3.11.7	*Areas that Require Fresh Thinking*	
	3.11.8	*Assessment at Different Stages*	
4.	**School and Classroom Environment**		**78**
	4.1	The Physical Environment	79
	4.2	Nurturing an Enabling Environment	82
	4.3	Participation of All Children	83
	4.3.1	*Children's Rights*	
	4.3.2	*Policy of Inclusion*	
	4.4	Discipline and Participatory Management	87
	4.5	Space for Parents and the Community	88
	4.6	Curriculum Sites and Learning Resources	89
	4.6.1	*Texts and Books*	
	4.6.2	*Libraries*	
	4.6.3	*Educational Technology*	
	4.6.4	*Tools and Laboratories*	
	4.6.5	*Other Sites and Spaces*	
	4.6.6	*Need for Plurality and Alternative Materials*	
	4.6.7	*Organising and Pooling Resources*	
	4.7	Time	95
	4.8	Teacher's Autonomy and Professional Independence	98
	4.8.1	*Time for Reflection and Planning*	

5.	**Systemic Reforms**		**101**
	5.1	Concern for Quality	102
	5.1.1	*Academic Planning and Monitoring for Quality*	
	5.1.2	*Academic Leadership in Schools and for School Monitoring*	
	5.1.3	*The Panchayats and Education*	
	5.2	Teacher Education for Curriculum Renewal	107
	5.2.1	*Present Concerns in Teacher Education*	
	5.2.2	*Vision for Teacher Education*	
	5.2.3	*Major Shifts in the Teacher Education Programme*	
	5.2.4	*In-Service Education and Training of Teachers*	
	5.2.5	*Initiatives and Strategies for In-Service Education*	
	5.3	Examination Reforms	114
	5.3.1	*Paper Setting, Examining and Reporting*	
	5.3.2	*Flexibility in Assessment*	
	5.3.3	*Board Examinations at Other Levels*	
	5.3.4	*Entrance Examinations*	
	5.4	Work-centred Education	116
	5.4.1	*Vocational Education and Training*	
	5.5	Innovation in Ideas and Practices	119
	5.5.1	*Plurality of Textbooks*	
	5.5.2	*Encouraging Innovations*	
	5.5.3	*The Use of Technology*	
	5.6	New Partnerships	121
	5.6.1	*Role of NGOs, Civil Society Groups and Teacher Organisations*	
	Epilogue		124
	Appendix I		126
	Summary		
	Appendix II		131
	Letters from Education Secretary, Government of India, MHRD, Department of Secondary and Higher Education		
	Index		134

CONSTITUTION OF INDIA

Preamble

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a **SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC** and to secure to all its citizen:

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the unity and integrity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

"When I was a child I had the freedom to make my own toys out of trifles and create my own games from imagination. In my happiness my playmates had their full share; in fact the complete enjoyment of my games depended upon their taking part in them. One day, in this paradise of our childhood, entered a temptation from the market world of the adult. A toy bought from an English shop was given to one of our companions; it was perfect, big and wonderfully life-like. He became proud of the toy and less mindful of the game; he kept that expensive thing carefully away from us, glorying in his exclusive possession of it, feeling himself superior to his playmates whose toys were cheap. I am sure if he could have used the modern language of history he would have said that he was more civilised than ourselves to the extent of his owning that ridiculously perfect toy. One thing he failed to realise in his excitement – a fact which at the moment seemed to him insignificant – that this temptation obscured something a great deal more perfect than his toy, the revelation of the perfect child. The toy merely expressed his wealth, but not the child's creative spirit, not the child's generous joy in his play, his open invitation to all who were his compeers to his play-world".

From ***Civilisation and Progress*** by Rabindranath Tagore

1.1 Introduction

1.2 Retrospect

1.3 National Curriculum Framework

1.4 Guiding Principles

1.5 Quality Dimension

1.6 Social Context of Education

1.7 Aims of Education

Chapter 1: Perspective

1.1 Introduction

India is a free nation with a rich variegated history, an extraordinarily complex cultural diversity and a commitment to democratic values and well-being for all. Ever since 1986 when the National Policy on Education was approved by Parliament, efforts to redesign the curriculum have been focused on the creation of a national system of education. Given the enormity and importance of the task of educating the country's children, it is necessary that, from time to time, we create occasions to collectively sit back and ask ourselves, "What is it that we are doing in our engagement with this task? Is it time for us to refresh what we provide to our children in the name of education?"

If we look at what the system of education has accomplished since Independence, perhaps we have much to be satisfied with. Today, our country engages nearly 55 lakh teachers spread over around 10 lakh schools to educate about 2,025 lakh children. While 82 per cent of habitations have a primary school within a radius of

one kilometre, there is an upper primary school within 3 kilometres for 75 per cent of habitations. At least 50 per cent of our children who appear at the school-leaving examinations pass out of the secondary school system. Despite these trends, 37 per cent people in India lack literacy skills, about 53 per cent children drop out at the elementary stage, and over 75 per cent of our rural schools are multigrade. Further, there is a deep disquiet about several aspects of our educational practice: (a) the school system is characterised by an inflexibility that makes it resistant to change; (b) learning has become an isolated activity, which does not encourage children to link knowledge with their lives in any organic or vital way; (c) schools promote a regime of thought that discourages creative thinking and insights; (d) what is presented and transmitted in the name of learning in schools bypasses vital dimensions of the human capacity to create new knowledge; (e) the "future" of the child has taken centre stage to the near exclusion of the child's "present", which is detrimental to the well-being of the child as well as the society and the nation.

The basic concerns of education—to enable children to make sense of life and develop their potential, to define and pursue a purpose and recognise the right of others to do the same—stand uncontested and valid even today. If anything, we need to reiterate the mutual interdependence of humans, and, as Tagore says, we achieve our greatest happiness when we realise ourselves through others. Equally, we need to reaffirm our commitment to the concept of equality, within the landscape of cultural and socio-economic diversity from which children enter into the portals of the school. Individual aspirations in a competitive economy tend to reduce education to being an instrument of material success. The perception, which places the individual in exclusively competitive relationships, puts unreasonable stress on children, and thus distorts values. It also makes learning from each other a matter of little consequence. Education must be able to promote values that foster peace, humaneness and tolerance in a multicultural society.

This document seeks to provide a framework within which teachers and schools can choose and plan experiences that they think children should have. In order to realise educational objectives, the curriculum should be conceptualised as a structure that articulates required experiences. For this, it should address some basic questions:

(a) What educational purposes should the schools seek to achieve?

(b) What educational experiences can be provided that are likely to achieve these purposes?

(c) How can these educational experiences be meaningfully organised?

(d) How do we ensure that these educational purposes are indeed being accomplished?

The review of the National Curriculum Framework, 2000 was initiated specifically to address the problem of curriculum load on children. A committee appointed by the Ministry of Human Resource Development in the early 1990s had analysed this problem, tracing its roots to the system's tendency to treat information as knowledge. In its report, *Learning Without Burden*, the committee pointed out that learning at school cannot become a joyful experience unless we change our perception of the child as a receiver of knowledge and move beyond the convention of using textbooks as the basis for examination. The impulse to teach everything arises from lack of faith in children's own creative instinct and their capacity to construct knowledge out of their experience. The size of textbooks has been growing over the years, even as the pressure to include new

topics mounts and the effort to synthesise knowledge and treat it holistically gets weaker. Flabby textbooks, and the syllabi they cover, symbolise a systemic failure to address children in a child-centred manner. Those who write such encyclopaedic textbooks are guided by the popular belief that there has been an explosion of knowledge. Therefore, vast amounts of knowledge should be pushed down the throats of little children in order to catch up with other countries. *Learning Without Burden* recommended a major change in the design of syllabi and textbooks, and also a change in the social ethos, which places stress on children to become aggressively competitive and exhibit precocity. To make teaching a means of harnessing the child's creative nature, the report recommended a fundamental change in the matter of organising the school curriculum, and also in the system of examination, which forces children to memorise information and to reproduce it. Learning for the sake of being examined in a mechanical manner takes away the joy of being young, and delinks school knowledge from everyday experience. To address this deep structural problem, the present document draws upon and elaborates on the insights of *Learning Without Burden.*

Rather than prescribe, this document seeks to enable teachers and administrators and other agencies involved in the design of syllabi and textbooks and examination reform make rational choices and decisions. It will also enable them to develop and implement innovative, locale-specific programmes. By contextualising the challenges involved in curriculum renewal in contemporary social reality, this document draws attention to certain specific problems that demand an imaginative response. We expect that it will strengthen ongoing processes of reform, such as devolution of decision making to teachers and elected local-level bodies, while it also identifies new areas for attention such as the need for plurality of textbooks and urgent improvement in the examination system.

1.2 RETROSPECT

Mahatma Gandhi had visualised education as a means of awakening the nation's conscience to injustice, violence and inequality entrenched in the social order. *Nai Talim* emphasised the self-reliance and dignity of the individual, which would form the basis of social relations characterised by non-violence within and across society. Gandhiji recommended the use of the immediate environment, including the mother tongue and work, as a resource for socialising the child into a transformative vision of society. He dreamt of an India in which every individual discovers and realises her or his talents and potential by working with others towards restructuring the world, which continues to be characterised by conflicts between nations, within society and between humanity and nature.

After Independence, the concerns of education articulated during the freedom struggle were revisited by the National Commissions — the Secondary Education Commission (1952 - 53) and the Education Commission (1964 - 66). Both Commissions elaborated on the themes emerging out of Mahatma Gandhi's educational philosophy in the changed socio-political context with a focus on national development.

Education under the Indian Constitution until 1976 allowed the state governments to take decisions on all matters pertaining to school education, including curriculum, within their jurisdiction. The Centre could only provide guidance to the States on policy issues. It is under such circumstances that the initial attempts of the National Education Policy of 1968 and the Curriculum Framework designed by NCERT in 1975 were formulated. In 1976, the Constitution was amended to include education in the Concurrent List,

and for the first time in 1986 the country as a whole had a uniform National Policy on Education. The NPE (1986) recommended a common core component in the school curriculum throughout the country. The policy also entrusted NCERT with the responsibility of developing the National Curriculum Framework, and reviewing the framework at frequent intervals.

NCERT in continuation of its curriculum-related work carried out studies and consultations subsequent to 1975, and had drafted a curriculum framework as a part of its activity in 1984. This exercise aimed at making school education comparable across the country in qualitative terms and also at making it a means of ensuring national integration without compromising on the country's pluralistic character. Based on such experience, the Council's work culminated in the National Curriculum Framework for School Education, 1988. However, the articulation of this framework through courses of studies and textbooks in a rapidly changing developmental context resulted in an increase in 'curricular load' and made learning at school a source of stress for young minds and bodies during their formative years of childhood and stress for young minds and bodies during their formative years of childhood and adolescence. This aspect has been coherently brought out in *Learning Without Burden, 1993,* the report of the Committee under the chairmanship of Professor Yash Pal.

1.3 National Curriculum Framework

In spite of the recommendations of the NPE, 1986 to identify competencies and values to be nurtured at different stages, school education came to be driven more and more by high-stake examinations based on information-loaded textbooks. Despite the review of the Curriculum Framework in 2000, the vexed issues of curriculum load and the tyranny of examinations remained unresolved. The current review exercise takes into cognizance both positive and negative developments in the field, and attempts to address the future requirements of school education at the turn of the century. In this endeavour, several interrelated dimensions have been kept in mind, namely, the aims of education, the social milieu of children, the nature of knowledge in its broader sense, the nature of human development, and the process of human learning.

The term National Curriculum Framework is often wrongly construed to mean that an instrument of uniformity is being proposed. The intention as articulated in the NPE, 1986 and the Programme of Action (PoA) 1992 was quite the contrary. NPE proposed a national framework for curriculum as a means of evolving a national system of education capable of responding to India's diversity of geographical and cultural milieus while ensuring a common core of values along with academic components. "The NPE - PoA envisaged a child-centred approach to promote universal enrolment and universal retention of children up to 14 years of age and substantial improvement in the quality of education in the school" (PoA, P. 77). The PoA further elaborated on this vision of NPE by emphasising relevance, flexibility and quality as characteristics of the National Curriculum Framework. Thus, both these documents envisioned the National Curriculum Framework as a means of modernising the system of education .

1.4 Guiding Principles

We need to plan and pay attention to systemic matters that will enable us to implement many of the good ideas that have already been articulated in the past. Paramount among these are :

> The National System of Education will be based on a national curricular framework, which contains a common core along with other components that are flexible. The common core will include the history of India's freedom movement, the constitutional obligations and other content essential to nurture national identity. These elements will cut across subject areas and will be designed to promote values such as India's common cultural heritage, egalitarianism, democracy and secularism, equality of sexes, protection of environment, removal of social barriers, observance of small family norm and inculcation of scientific temper. All educational programmes will be carried on in strict conformity with secular values. India has always worked for peace and understanding between nations, treating the whole world as one family. True to this hoary tradition, education has to strengthen this world-view and motivate the younger generations for international cooperation and peaceful co-existence. This aspect cannot be neglected. To promote equality, it will be necessary to provide for equal opportunity for all, not only in access but also in the conditions of success. Besides, awareness of the inherent equality of all will be created through the core curriculum. The purpose is to remove prejudices and complexes transmitted through the social environment and the accident of birth.
>
> National Policy on Education, 1986

- connecting knowledge to life outside the school,
- ensuring that learning is shifted away from rote methods,
- enriching the curriculum to provide for overall development of children rather than remain textbook centric,
- making examinations more flexible and integrated into classroom life and,
- nurturing an over-riding identity informed by caring concerns within the democratic polity of the country.

In the present context, there are new developments and concerns to which our curriculum must respond. The foremost among these is the importance of including and retaining all children in school through a programme that reaffirms the value of each child and enables all children to experience dignity and the confidence to learn. Curriculum design must reflect the commitment to Universal Elementary Education (UEE), not only in representing cultural diversity, but also by ensuring that children from different social and economic backgrounds with variations in physical, psychological and intellectual characteristics are able to learn and achieve success in school. In this context, disadvantages in education arising from inequalities of gender, caste, language, culture, religion or disabilities need to be addressed directly, not only through policies and schemes but also through the design and selection of learning tasks and pedagogic practices, right from the period of early childhood.

UEE makes us aware of the need to broaden the scope of the curriculum to include the rich inheritance of different traditions of knowledge, work and crafts. Some of these traditions today face a serious threat from market forces and the commodification of knowledge in the context of the globalisation of the economy. The development of self-esteem and ethics, and the need to cultivate children's creativity, must receive primacy. In the context of a fast-changing world and a competitive global context, it is imperative that we respect children's native wisdom and imagination.

Decentralisation and emphasis on the role of Panchayati Raj Institutions (PRIs) are to be viewed as major steps towards systemic reforms. PRIs offer an opportunity to make the system less bureaucratic,

The formal approach, of *equality of treatment*, in terms of equal access or equal representation for girls, is inadequate. Today, there is a need to adopt a substantive approach, towards *equality of outcome*, where diversity, difference and disadvantage are taken into account.

A critical function of education for equality is to enable all learners to claim their rights as well as to contribute to society and the polity. We need to recognise that *rights and choices in themselves cannot be exercised until central human capabilities are fulfilled*. Thus, in order to make it possible for marginalised learners, and especially girls, to claim their rights as well as play an active role in shaping collective life, education must empower them to overcome the disadvantages of unequal socialisation *and enable them to develop their capabilities of becoming autonomous and equal citizens.*

teachers more accountable, and the schools more autonomous and responsive to the needs of children. These steps should also stimulate questions and entanglements with local physical conditions, life and environment. Children acquire varied skills naturally while growing up in their environment. They also observe life and the world around them. When imported into classrooms, their questions and queries can enrich the curriculum and make it more creative. Such reforms will also facilitate the practice of the widely acknowledged curricular principles of moving from "known to the unknown", from "concrete to abstract", and from "local to global". For this purpose, the concept of critical pedagogy has to be practised in all dimensions of school education, including teacher education. It is here that, for instance, productive work can become an effective pedagogic medium for (a) connecting classroom knowledge to the life experiences of children; (b) allowing children from marginalised sections of society, having knowledge and skills related to work, to gain a definite edge and respect among their peers from privileged sections; and (c) facilitating a growing appreciation of cumulative human experience, knowledge and theories by building rationally upon the contextual experiences.

Making children sensitive to the environment and the need for its protection is another important curricular concern. The emergence of new technological choices and living styles witnessed during the last century has led to environmental degradation and vast imbalances between the advantaged and the disadvantaged. It has become imperative now more than ever before to nurture and preserve the environment. Education can provide the necessary perspective on how human life can be reconciled with the crisis of the environment so that survival, growth and development remain possible. The National Policy on Education, 1986 emphasised the need to create awareness of environmental concerns by integrating it in the educational process at all stages of education and for all sections of society.

Living in harmony within oneself and with one's natural and social environment is a basic human need. Sound development of an individual's personality can take place only in an ethos marked by peace. A disturbed natural and psycho-social environment often leads to stress in human relations, triggering intolerance and conflict. We live in an age of unprecedented violence—local, national, regional and global. Education often plays a passive, or even insidious role, allowing young minds to be indoctrinated into a culture of intolerance, which denies the fundamental importance of human sentiments and the noble truths discovered by different civilisations. Building a culture of peace is an incontestable goal of education. Education to be meaningful should empower individuals to choose peace as a way of life and enable them to become

managers rather than passive spectators of conflict. Peace as an integrative perspective of the school curriculum has the potential of becoming an enterprise for healing and revitalising the nation.

As a nation we have been able to sustain a robust democratic polity. The vision of democracy articulated by the Secondary Education Commission (1952) is worth recalling:

> *Citizenship in a democracy involves many intellectual, social and moral qualities...a democratic citizen should have the understanding and the intellectual integrity to sift truth from falsehood, facts from propaganda and to reject the dangerous appeal of fanaticism and prejudice ... should neither reject the old because it is old nor accept the new because it is new, but dispassionately examine both and courageously reject what arrests the forces of justice and progress…..*

For us to foster democracy as a way of life rather than only a system of governance, the values enshrined in the Constitution assume paramount significance.

- The Constitution of India guarantees equality of status and opportunity to all citizens. Continued exclusion of vast numbers of children from education and the disparities caused through private and public school systems challenge the efforts towards achieving equality. Education should function as an instrument of social transformation and an egalitarian social order.
- Justice—social, economic and political—to all citizens is integral to strengthening democracy.
- Liberty of thought and action is a fundamental value embedded in our Constitution. Democracy requires as well as creates a kind of citizen who pursues her own autonomously chosen ends and respects others' right to do so as well.
- A citizen needs to internalise the principles of equality, justice and liberty to promote fraternity among all.
- India is a secular democratic state, which means that all faiths are respected, but at the same time the Indian state has no preference for any particu lar faith. The felt need, today, is to inculcate among children a respect for all people regardless of their religious beliefs.

India is a multicultural society made up of numerous regional and local cultures. People's religious beliefs, ways of life and their understanding of social relationships are quite distinct from one another. All the groups have equal rights to co-exist and flourish, and the education system needs to respond to the cultural pluralism inherent in our society. To strengthen our cultural heritage and national identity, the curriculum should enable the younger generation to reinterpret and re-evaluate the past with reference to new priorities and emerging outlooks of a changing societal context. Understanding human evolution should make it clear that the existence of distinctness in our country is a tribute to the special spirit of our country, which allowed it to flourish. The cultural diversity of this land should continue to be treasured as our special attribute. This should not be considered a result of mere tolerance. Creation of a citizenry conscious of their rights and duties, and commitment to the principles embodied in our Constitution is a prerequisite in this context.

1.5 THE QUALITY DIMENSION

Even as the system attempts to reach every child, the issue of quality presents a new range of challenges. The belief that quality goes with privilege is clearly irreconcilable with the vision of participatory democracy that India upholds and practises in the political sphere. Its practise in the sphere of education

Democracy is based on faith in the dignity and worth of every single individual as a human being. ... The object of a democratic education is, therefore, the full, all-round development of every individual's personality. ... i.e. an education to initiate the students into the many-sided art of living in a community. It is obvious, however, that an individual cannot live and develop alone. .... No education is worth the name which does not inculcate the qualities necessary for living graciously, harmoniously and efficiently with one's fellow men. (Secondary Education Commission, 1952 - 53, p. 20)

demands that the education available to all children in different regions and sections of society has a comparable quality. J.P. Naik had described equality, quality and quantity as the 'elusive triangle' of Indian education. Dealing with this metaphorical triangle requires a deeper theoretical understanding of quality than has been available. UNESCO's recently published global monitoring report discusses systemic standards as the appropriate context of the quality debate. From this point of view, the child's performance needs to be treated as an indicator of systemic quality. In a system of education that is divided between a fast-growing private sector and a larger state sector marked by shortages and the uneven spread of resources, the issue of quality poses complex conceptual and practical questions. The belief that private schools have higher quality treats examination results as the sole criterion for judging quality. This kind of perception ignores the ethos-related limitations of the privileged private schools. The fact that they often neglect the child's mother tongue warrants us to wonder about the opportunities that they are able to provide to the child for constructing knowledge in meaningful ways. Moreover, the exclusion of the poor from their admission process implies the loss of learning opportunities that occur in a classroom with children from diverse socio-economic and cultural backgrounds.

Physical resources by themselves cannot be regarded as an indicator of quality; yet, the extreme and chronic shortage of physical resources, including basic infrastructural amenities, in schools run by the state or local bodies does present a serious quality constraint. The availability of qualified and motivated teachers who perceive teaching as a career option applies to all sectors of schools as a necessary precondition for quality. Recent suggestions for the dilution of standards in teacher recruitment, training and service conditions articulated in the NPE, and, before it, by the Chattopadhyaya Commission (1984), arouse anxiety. No system of education can rise above the quality of its teachers, and the quality of teachers greatly depends on the means deployed for selection, procedures used for training, and the strategies adopted for ensuring accountability.

The quality dimension also needs to be examined from the point of view of the experiences designed for the child in terms of knowledge and skills. Assumptions about the nature of knowledge and the child's own nature shape the school ethos and the approaches used by those who prepare the syllabi and textbooks, and by teachers as well. The representation of knowledge in textbooks and other materials needs to be viewed from the larger perspective of the challenges facing humanity and the nation today. No subject in the school curriculum can stay aloof from these larger concerns, and therefore the selection of knowledge proposed to be included in each subject area requires careful examination in terms of socio-economic and cultural conditions and goals. The

greatest national challenge for education is to strengthen our participatory democracy and the values enshrined in the Constitution. Meeting this challenge implies that we make quality and social justice the central theme of curricular reform. Citizenship training has been an important aspect of formal education. Today, it needs to be boldly reconceptualised in terms of the discourse of universal human rights and the approaches associated with critical pedagogy. A clear orientation towards values associated with peace and harmonious coexistence is called for. Quality in education includes a concern for quality of life in all its dimensions. This is why a concern for peace, protection of the environment and a predisposition towards social change must be viewed as core components of quality, not merely as value premises.

1.6 THE SOCIAL CONTEXT OF EDUCATION

The education system does not function in isolation from the society of which it is a part. Hierarchies of caste, economic status and gender relations, cultural diversity as well as the uneven economic development that characterise Indian society also deeply influence access to education and participation of children in school. This is reflected in the sharp disparities between different social and economic groups, which are seen in school enrolment and completion rates. Thus, girls belonging to *SC* and *ST* communities among the rural and urban poor and the disadvantaged sections of religious and other ethnic minorities are educationally most vulnerable. In urban locations and many villages, the school system itself is stratified and provides children with strikingly different educational experiences. Unequal gender relations not only perpetuate domination but also create anxieties and stunt the freedom of both boys and girls to develop their human capacities to their fullest. It is in the interest of *all* to liberate human beings from the existing inequalities of gender.

Schools range from the high- cost 'public' (private) schools, to which the urban elite send their children, to the ostensibly 'free', poorly functioning local- body - run primary schools where children from hitherto educationally deprived communities predominate. A striking recent feature is the growth of multigrade schools in rural areas, based on the mechanical application of 'teacher - pupil ratios' to the need to provide a school within 1 km. of each habitation, yet unsupported by the necessary curricular concepts or clarity on materials or pedagogy. Such developments unintentionally reinforce privilege and exclusion in education and undermine the constitutional values of equality of opportunity and social justice. If 'free' education is understood as the 'removal of constraints' to education, then we must realise the importance of other sectors of the state's social policy for supporting and facilitating the achievement of UEE.

Globalisation and the spread of market relations to every sphere of society have important implications for education. On the one hand, we are witnessing the increasing commercialisation of education, and, on the other hand, inadequate public funding for education and the official thrust towards 'alternative' schools. These factors indicate a shifting of responsibility for education from the state to the family and the community. We need to be vigilant about the pressures to commodify schools and the application of market-related concepts to schools and school quality. The increasingly competitive environment into which schools are being drawn and the aspirations of parents place a tremendous burden of stress and anxiety on all children, including the very young, to the detriment of their personal growth

and development, and thus hampering the inculcation of the joy of learning.

The 73rd and 74th Constitutional amendments, and the institutionalised statutory space they provide for local communities to participate in decision making in education for their children, are important developments. However, parental aspirations for education are belied by endemic poverty and unequal social relations, and by lack of adequate provision of schooling of equitable quality. The concerns of the burgeoning population of the urban poor are still not reflected in planning. The expectations and aspirations of the poor for education cannot be set aside as being outside the frame of curricular concerns.

The social context of education in India thus presents a number of challenges, which must be addressed by the curriculum framework, both in its design as well as its implementation. The discussion on guiding principles has drawn attention to these challenges as well as some of the ways in which they can be addressed. Opening the concept of knowledge to include new areas of knowledge and experience, inclusivity in selecting learning tasks, pedagogic practices that are alert to promoting participation, building self-confidence and critical awareness, and an openness to engaging with the community to explain and share curricular decisions are among the new ideas discussed in different sections of this document.

1.7 Aims of Education

The aims of education serve as broad guidelines to align educational processes to chosen ideals and accepted principles. The aims of education simultaneously reflect the current needs and aspirations of a society as well as its lasting values, and the immediate concerns of a community as well as broad human ideals. At any given time and place they can be called the contemporary and contextual articulations of broad and lasting human aspirations and values.

Educational aims turn the different activities undertaken in schools and other educational institutions into a creative pattern and give them the distinctive character of being 'educational'. An educational aim helps the teacher connect her present classroom activity to a cherished future outcome without making it instrumental, and therefore give it direction without divorcing it from current concerns. Thus, an aim is a foreseen end: it is not an idle view of a mere spectator; rather, it influences the steps taken to reach the end. An aim must provide foresight. It can do this in three ways: First, it involves careful observation of the given conditions to see what means are available for reaching the end, and to discover the hindrances in the way. This may require a careful study of children, and an understanding of what they are capable of learning at different ages. Second, this foresight suggests the proper order or sequence that would be effective. Third, it makes the choice of alternatives possible. Therefore, acting with an aim allows us to act intelligently. The school, the classroom, and related learning sites are spaces where the core of educational activity takes place. These must become spaces where learners have experiences that help them achieve the desired curricular objectives. An understanding of learners, educational aims, the nature of knowledge, and the nature of the school as a social space can help us arrive at principles to guide classroom practices.

The guiding principles discussed earlier provide the landscape of social values within which we locate our educational aims. The first is a commitment to democracy and the values of equality, justice, freedom, concern for others' well-being, secularism, respect for human dignity and rights. Education should aim to build

a commitment to these values, which are based on reason and understanding. The curriculum, therefore, should provide adequate experience and space for dialogue and discourse in the school to build such a commitment in children.

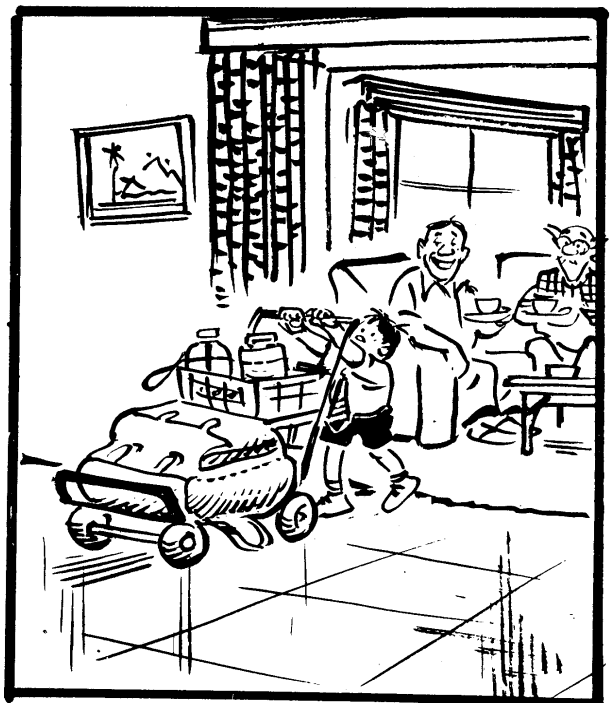
Independence of thought and action points to a capacity of carefully considered, value-based decision making, both independently and collectively.

A sensitivity to others' well-being and feelings, together with knowledge and understanding of the world, should form the basis of a rational commitment to values.

Learning to learn and the willingness to unlearn and relearn are important as means of responding to new situations in a flexible and creative manner. The curriculum needs to emphasise the processes of constructing knowledge.

Choices in life and the ability to participate in democratic processes depend on the ability to contribute to society in various ways. This is why education must develop the ability to work and participate in economic processes and social change. This necessitates the integration of work with education. We must ensure that work-related experiences are sufficient and broadbased in terms of skills and attitudes,that they foster an understanding of socio-economic processes, and help inculcate a mental frame that encourages working with others in a spirit of cooperation. Work alone can create a social temper.

Appreciation of beauty and art forms is an integral part of human life. Creativity in arts, literature and other domains of knowledge is closely linked.



Ah, my son is off to school !..... Luckily I managed to get one of these from the airport !
(Courtesy : R. K. Laxman in the Times of India)

Education must provide the means and opportunities to enhance the child's creative expression and the capacity for aesthetic appreciation. Education for aesthetic appreciation and creativity is even more important today when aesthetic gullibility allows for opinion and taste to be manufactured and manipulated by market forces. The effort should be to enable the learner to appreciate beauty in its several forms. However, we must ensure that we do not promote stereotypes of beauty and forms of entertainment, that might constitute an affront to women and persons with disabilities.

2.1 Primacy of the Active Learner

2.2 Learners in Context

2.3 Development and Learning

2.4 Implications for Curriculum and Practice

2.5 Knowledge and Understanding

2.6 Recreating Knowledge

2.7 Children's Knowledge and Local Knowledge

2.8 School Knowledge and the Community

2.9 Some Developmental Considerations

Chapter 2: Learning and Knowledge

This chapter establishes the need to recognise the child as a natural learner, and knowledge as the outcome of the child's own activity. In our everyday lives outside the school, we enjoy the curiosity, inventiveness and constant querying of children. They actively engage with the world around them, exploring, responding, inventing and working things out, and making meaning. Childhood is a period of growth and change, involving developing one's physical and mental capacities to the fullest. It involves being socialised into adult society, into acquiring and creating knowledge of the world and oneself in relation to others in order to understand, to act, and to transform. Each new generation inherits the storehouse of culture and knowledge in society by integrating it into one's own web of activities and understanding, and realising its 'fruitfulness' in creating afresh.

2.1 Primacy of the Active Learner

Informal learning in society builds on the learners' natural ability to draw upon and construct their own knowledge, to develop their

capacities, in relating to the environment around them, both physical and social, and to the task at hand. For this to happen, opportunities to try out, manipulate, make mistakes and correct oneself are essential. This is as true of learning language as it is of a craft skill or a discipline. Schools as institutions provide new opportunities for all learners to learn about themselves, others, and society, to access their inheritance and engage with it irrespective of and outside the access provided by one's birth into a family and a community. The formal processes of learning that school makes possible can open up new possibilities of understanding and relating to the world.

Our current concern in curriculum development and reform is to make it an inclusive and meaningful experience for children, alongwith the effort to move away from a textbook culture. This requires a fundamental change in how we think of learners and the process of learning. Hence the need to engage in detail with the underpinnings and implications of 'child-centred' education.

'Child-centred' pedagogy means giving primacy to children's experiences, their voices, and their active participation. This kind of pedagogy requires us to plan learning in keeping with children's psychological development and interests. The learning plans therefore must respond to physical, cultural and social preferences within the wide diversity of characteristics and needs. Our school pedagogic practices, learning tasks, and the texts we create for learners tend to focus on the socialisation of children and on the 'receptive' features of children's learning. Instead, we need to nurture and build on their active and creative capabilities—their inherent interest in making meaning, in relating to the world in 'real' ways through acting on it and creating, and in relating to other humans. Learning is active and social in its character. Frequently, the notions of 'good student' that are promoted emphasise obedience to the teacher, moral character, and acceptance of the teacher's words as 'authoritative' knowledge.

2.2 LEARNERS IN CONTEXT

Children's voices and experiences do not find expression in the classroom. Often the only voice heard is that of the teacher. When children speak, they are usually only answering the teacher's questions or repeating the teacher's words. They rarely do things, nor do they have opportunities to take initiative. The curriculum must enable children to find their voices, nurture their curiosity—to do things, to ask questions and to pursue investigations, sharing and integrating their experiences with school knowledge—rather than their ability to reproduce textual knowledge. Reorienting the curriculum to this end must be among our highest priorities, informing the preparation of teachers, the annual plans of schools, the design of textbooks,

Common sources of physical discomfort

- *Long walks to school.*
- *Heavy school bags.*
- *Lack of basic infrastructure, including support books for reading and writing.*
- *Badly designed furniture that gives children inadequate back support and cramps their legs and knees.*
- *Time tables that do not give young children enough breaks to stretch, move and play, and that deprive older children of play/sports time, and encourage girls to opt out.*
- *Especially for girls, the absence of toilets and sanitary requirements.*
- *Corporal punishment—beating, awkward physical postures.*

learning materials and teaching plans, and evaluation and examination patterns.

Children will learn only in an atmosphere where they feel they are valued. Our schools still do not convey this to *all* children. The association of learning with fear, discipline and stress, rather than enjoyment and satisfaction, is detrimental to learning. Our children need to feel that each one of them, their homes, communities, languages and cultures, are valuable as resources for experience to be analysed and enquired into at school; that their diverse capabilities are accepted; that all of them have the ability and the right to learn and to access knowledge and skills; and that adult society regards them as capable of the best. We are becoming more aware of the importance of these needs as our schools expand and increasingly include children from all sections of society. The midday meal and the provisioning of infrastructural support and pedagogic concern for inclusive education are among the most significant developments in recent times. A strong stand must be taken against all forms of corporal punishment. The boundaries of the school need to become more porous to the community. At the same time, the problems of curriculum load and examination-related stress require urgent attention in all their dimensions. Physical and emotional security is the cornerstone for all learning, right from the primary to the secondary school years, and even afterwards.

2.3 Development and Learning

The period from infancy to adolescence is one of rapid growth and change. The curriculum must have a holistic approach to learning and development that is able to see the interconnections and transcend divisions between physical and mental development, and between individual development and interaction with others.

2.3.1 The precondition for all development is healthy physical growth of all children. This requires that the basic needs in terms of adequate nutrition, physical exercise and other psycho-social needs are addressed. Participation of all children in free play, informal and formal games, yoga and sports activities is essential for their physical and psycho-social development.The range of abilities as a result of games, sports and yoga will improve stamina, fine and gross motor skills and dexterities, self-awareness and control, and coordination in team games. Simple adaptation of playgrounds, equipment and rules can make activities and games accessible to all children in the school. Children can achieve high levels of excellence in sports, athletics, gymnastics, yoga and performing arts such as dance. When the emphasis shifts from enjoyment to achievement, such training can make demands of discipline and practice that can create stress at this stage. Whereas all students must be involved in health and physical education activities, those who choose to excel in games and sports need to be provided adequate opportunities.

Physical development supports mental and cognitive development, especially in young children. The capacity to think, reason and make sense of the self and the world, and to use language, is intimately connected with acting and interacting—doing things by oneself and with others.

2.3.2 Cognition involves the capacity to make sense of the self and the world, through action and language. Meaningful learning is a generative process of representing and manipulating concrete things and mental representations, rather than storage and retrieval of information. Thinking, language (verbal or sign) and doing things are thus intimately inter-twined. This is a process that begins in infancy, and develops through independent and mediated activities. Initially, children are cognitively oriented to the here and now, able to

There is a range of schools, both private and government, catering to different socio-economic groups. According to the Kothari Commission: "In a situation of the type we have in India, it is the responsibility of the education system to bring the different social classes and groups together and thus promote the emergence of an egalitarian and integrated society. But at present instead of doing so, the education system itself is tending to increase social segregation and to perpetuate and widen class distinctions. ... What is worse, this segregation is increasing and tending to widen the gulf between the classes and the masses..." (1966:18). Are we telling our children that we value them differently? If the answer is 'Yes', we urgently need to take steps for realising the goal that the Kothari Commission had placed before us by recommending a system of common schools. A common school system can be defined as a national system of education that is founded on the ideals and values of the Constitution of India, and which has the capacity to provide education of a comparable quality to all children in an equitable manner irrespective of their caste, creed, gender, class or location. In such a system, all categories of schools presently in vogue (i.e. government, local body, or private) have the responsibility of providing for basic infrastructural and pedagogic norms and ensuring free education to all children residing in the vicinity of the school.

reason and act logically on concrete experiences. As their linguistic capabilities and their ability to work in the company of others develop, it opens up possibilities of more complex reasoning in tasks that involve abstraction, planning and dealing with ends that are not in view. There is an overall increase in the capability of working with the hypothetical, and reasoning in the world of the possible.

Conceptual development is thus a continuous process of deepening and enriching connections and acquiring new layers of meaning. Alongside is the development of theories that children have about the natural and social worlds, including themselves in relation to others, which provide them with explanations for why things are the way they are, the relationships between causes and effects, and the bases for decisions and acting. Attitudes, emotions and morals are thus an integral part of cognitive development, and are linked to the development of language, mental representations, concepts and reasoning. As children's metacognitive capabilities develop, they become more aware of their own beliefs and capable of regulating their own learning.

- All children are naturally motivated to learn and are capable of learning.
- Making meaning and developing the capacity for abstract thinking, reflection and work are the most important aspects of learning.
- Children learn in a variety of ways—through experience, making and doing things, experimentation, reading, discussion, asking, listening, thinking and reflecting, and expressing oneself in speech, movement or writing—both individually and with others. They require opportunities of all these kinds in the course of their development.
- Teaching something before the child is cognitively ready takes away from learning it at a later stage. Children may 'remember' many facts but they may not understand them or be able to relate them to the world around them.
- Learning takes place both within school and outside school. Learning is enriched if the two arenas interact with each other. Art and work provide opportunities for holistic learning that is rich in tacit and aesthetic components. Such experiences are essential for linguistically known things,

especially in moral and ethical matters, to be learnt through direct experience, and integrated into life.

- Learning must be paced so that it allows learners to engage with concepts and deepen understanding, rather than remembering only to forget after examinations. At the same time learning must provide variety and challenge, and be interesting and engaging. Boredom is a sign that the task may have become mechanically repetitive for the child and of little cognitive value.
- Learning can take place with or without mediation. In the case of the latter, the social context and interactions, especially with those who are capable, provide avenues for learners to work at cognitive levels above their own.

2.3.3 Adolescence is a critical period for the development of self-identity. The process of acquiring a sense of self is linked to physiological changes, and also learning to negotiate the social and psychological demands of being young adults. Responsible handling of issues like independence, intimacy, and peer group dependence are concerns that need to be recognised, and appropriate support be given to cope with them. The physical space of the outside world, one's access to it, and free movement influence construction of the self. This is of special significance in the case of girls, who are often constrained by social conventions to stay indoors. These very conventions promote the opposite stereotype for boys, which associates them with the outdoors and physical process. These stereotypes get especially heightened as a result of biological maturational changes during adolescence. These physiological changes have ramifications in the psychological and social aspects of an adolescent's life. Most adolescents deal with these changes without full knowledge and understanding, which could make them vulnerable to risky situations like sexually transmitted diseases, sexual abuse, HIV/AIDS and drug and substance abuse.

It is a time when the given and internalised norms and ideas are questioned, while at the same time the opinions of the peer group become very important. It is important to recognise that adolescents need social and emotional support that may require reinforcement of norms of positive behaviour, acquisition of skills essential to cope with the risky situations that they encounter in their lives, manage peer pressure and deal with gender stereotypes. The absence of such support can lead to confusion and misunderstanding about these changes, and affect their academic and extracurricular activities.

2.3.4 It is important to create an inclusive environment in the classroom for all students, especially those who are at risk of marginalisation, for instance, students with disabilities. Labelling an individual student or a group of students as learning disabled etc. creates a sense of helplessness, inferiority and stigmatisation. It tends to overshadow difficulties that children may be facing in schools due to diverse socio-cultural backgrounds and inappropriate pedagogical approaches being used in the classroom. A student with a disability has an equal right to membership of the same group as all other students. Differences between students must be viewed as resources for supporting learning rather than as a problem. Inclusion in education is one of the components of inclusion in society.

Schools, therefore, have a responsibility of providing a flexible curriculum that is accessible to all students. This document can form a starting point for planning a curriculum that meets the specific needs of individual students or groups of students. The curriculum must provide appropriate challenges and create enabling opportunities for students to experience

success in learning and achievement to the best of their potential. Teaching and learning processes in the classroom should be planned to respond to the diverse needs of students. Teachers can explore positive strategies for providing education to all children, including those perceived as having disabilities. This can be achieved in collaboration with fellow teachers or with organisations outside the school.

2.4 IMPLICATIONS FOR CURRICULUM AND PRACTICE

2.4.1 Teaching for Construction of Knowledge

In the constructivist perspective, learning is a process of the construction of knowledge. Learners actively construct their own knowledge by connecting new ideas to existing ideas on the basis of materials/activities presented to them (experience). For example, using a text or a set of pictures/visuals on a transport system coupled with discussions will allow young learners to be facilitated to construct the idea of a transport system. Initial construction (mental representation) may be based on the idea of the road transport system, and a child from a remote rural setting may form the idea centred around the bullock cart. Learners construct mental representations (images) of external reality (transport system) through a given set of activities (experiences). The structuring and restructuring of ideas are essential features as the learners progress in learning. For instance, the initial idea of a transport system built around road transport will be reconstructed to accommodate other types of transport systems—sea and air—using appropriate activities. The engagement of learners, through relevant activities, can further facilitate in the construction of mental images of the relationships (cause-effect) between a transport system and human life/economy. However, there is a social aspect in the construction process in the sense that knowledge needed for a complex task can reside in a group situation. In this context, collaborative learning provides room for negotiation of meaning, sharing of multiple views and changing the internal representation of the external reality. Construction indicates that each learner individually and socially constructs meaning as he/she learns. Constructing meaning is learning. The constructivist perspective provides strategies for promoting learning by all.

The teacher's own role in children's cognition could be enhanced if they assume a more active role in relation to the process of knowledge construction in which children are engaged. A child constructs her/his knowledge while engaged in the process of learning. Allowing children to ask questions that require them to relate what they are learning in school to things happening outside, encouraging children to answer in their own words and from their own experiences, rather than simply memorising and getting answers right in just one way — all these are small but important steps in helping children develop their understanding. 'Intelligent guessing' must be encouraged as a valid pedagogic tool. Quite often, children have an idea arising from their everyday experiences, or because of their exposure to the media, but they are not quite ready to articulate it in ways that a teacher might appreciate. It is in this 'zone' between what you know and what you almost know that new knowledge is constructed. Such knowledge often takes the form of skills, which are cultivated outside the school, at home or in the community. All such forms of knowledge and skills must be respected. A sensitive and informed teacher is aware of this and is able to engage children through well-chosen tasks and questions, so that they are able to realise their developmental potential.

Active engagement involves enquiry, exploration, questioning, debates, application and reflection, leading

to theory building and the creation of ideas/positions. Schools must provide opportunities to question, enquire, debate, reflect, and arrive at concepts or create new ideas. An element of challenge is critical for the process of active engagement and learning various concepts, skills and positions through the process. What is challenging for a particular age group becomes easy and uninteresting for the other age group, and may be remote and uninteresting at another stage.

So often, in the name of 'objectivity', teachers sacrifice flexibility and creativity. Very often teachers, in government as well as private schools, insist that all children must give identical answers to questions. The argument given for not accepting other answers is that, "They cannot give answers that are not there in the textbook." "We discussed it in the staffroom and decided that we will only accept this answer as right!", or that "There will be too many types of answers. Then should we accept them all?" Such arguments make a travesty of the meaning of learning and only serve to convince children and parents that schools are irrationally rigid. We must ask ourselves why we only ask children to *give* answers to questions. Even the ability to make a set of questions for given answers is a valid test of learning.

2.4.2 The Value of Interactions

Learning takes place through interactions with the environment around, nature, things and people, both through actions and through language. The physical activity of moving, exploring and doing things, on one's own, with one's peers or in the company of adults, and using language — to read, to express or ask, to listen and to interact — are the key processes through which learning occurs. The context in which learning takes place is thus of direct cognitive significance.

Framing Questions...

If the answer is '5', what might be the questions? Here are some 'answers'.

What is four and one make?

What is thirty-three take away twenty-seven plus one?

How many burfees do you want?

I reached my grandmother's house on Sunday and I left on Thursday. How many days did I spend there?

A, B, C came. Then E, F, G, H joined them. Then A and G left. Then G came back, and B went away. How many were left finally?

***If the answer is,* 'It was red', what might be the questions?**

What was the colour of the flower?

Why did you put the letter into that box?

Why did she stop so suddenly at the traffic light?

Much of our school learning is still individual based (although not individualised!). The teacher is seen as transmitting 'knowledge', which is usually confused with information, to children, and organising experiences in order to help children learn. But interaction with teachers, with peers, as well as those who are older and younger can open up many more rich learning possibilities. Learning in the company of others is a process of interacting with each other and also through the learning task at hand. This kind of learning is enriched when schools enrol children from different socio-economic backgrounds.

In the early primary school years, a beginning has been made in the area of group work. Projects and activities that can be carried out by groups need to

Constructivist Learning Situation

Process	Science	Language
	Situation Learners read a text on mammals and view a video on the life of mammals in different locales. Such events or activities consist of mammals moving in groups on land or in water, grazing, attacking a prey, giving birth, flocking together at the time of danger and related events.	*Situation* Learners read the story 'Kabuliwallah'. Later, they are given background material with illustrations of certain scenes of the story and brief descriptions. A few learners enact one or two scenes depicted in the illustrations.
Observation	Learners make note of the key events or behaviour or activities of mammals.	Learners watch the scenes enacted.
Contextualisation	They relate their analysis to the text.	They relate the story of the text with the illustrations of the background material.
Cognitive apprenticeship	Teacher illustrates how he/she would analyse and interpret such information using the example of mammals.	Using a scene enacted, the teacher models how to integrate reading the story and the illustrations of the background material.
Collaboration	Learners form groups to work on the task while the teacher suggests/guides them as they proceed.	Learners work in groups to generate interpretations while the teacher suggests/ guides them as they proceed.
Interpretation construction	Learners analyse and generate evidence to verify their hypothesis related to mammals living on land or water, etc.	They analyse and generate their own interpretations of the story.
Multiple interpretations	They provide explanations and defend their ideas or hypotheses using their analyses and text both within and between groups. Evidence and arguments along with the text expose them to various ways of finding answers or interpreting data.	Comparing the interpretations within and between groups gives the learners the idea that people can have different reactions to the story, 'Kabuliwallah'.
Multiple manifestations	By going back and forth through the process and relating each contextual background on various events and the behaviour of mammals, the learners notice that the general principles embedded in what they are doing become manifested.	Using the text, background illustrations and their own reflections, the learners see how the same characters and themes can be manifested in several ways.

Role of the Teacher : *In this context, the teacher is a facilitator who encourages learners to reflect, analyse and interpret in the process of knowledge construction.*

become a feature of learning in the middle and high school also. There are ways in which such group learning can be assessed and evaluated. Schools could also consider giving mixed age groups of children projects to do together. In such mixed groups, there is much that children can learn from each other, such as team work and social values. In the company of others, one has opportunities of participating in larger tasks where one may find a niche to contribute to, thus achieving something above one's own potential, and one may be able to try out what one does not fully know. Group learning tasks, taking responsibility, and contributing to a task at hand are all important facets of not only acquiring knowledge but also in the learning of arts and crafts . In a multi-grade class situation, such vertical grouping, which cuts across different grades, and which allows a single activity to be used across different age groups, could provide a pedagogically feasible and sound curriculum plan.

2.4.3 Designing Learning Experiences

The quality of the learning task influences its learnability and its value for the learner. Tasks that are too easy or too difficult, that are repetitive and mechanical, that are based on recalling the text, that do not permit self-expression and questioning by the child and that depend solely on the teacher for correction, make the child assume the passive stance of obedience. Learners learn not to value their own ability to think and reason, that knowledge is created by others and that they must only receive it. The onus falls teacher to 'motivate' children who do not seem to be naturally motivated. Learners accept being controlled and learn to want to control. These are ultimately detrimental to the growth of cognitive self-reflexivity and flexibility which are essential if learning is to empower the learner. By the time they reach Class VII, many children who have grown up in this kind of learning environment, lose their self-confidence and their ability to express themselves or make meaning out of their experiences in school. They repeatedly resort to mechanical rote memorisation to pass examinations.

Instead, tasks that are challenging and allow independent thinking, and multiple ways of being solved, encourage independence, creativity and self-discipline in learners. Instead of a culture of quizzing, of answering quickly and always knowing the right answer, we need to allow learners to spend time on deeper, meaningful learning.

Learning tasks that are designed to ensure that children will be encouraged to seek out knowledge from sites other than the textbook, in their own experience, in the experiences of people at home and in the community, in libraries and other sites outside the school, communicate the philosophy that learning and knowledge are to be sought out, authenticated and thereby constructed, and that neither the textbook nor the teacher is an authority. In this context, heritage sites assume great significance as sites of learning. Not only the history teacher, but also teachers of all subjects need to inculcate in the children under their care a sense of respect for sites of archaeological significance and the desire to explore and understand their importance.

There have been efforts aimed at improving the classroom environment and curriculum planning for children in Classes I and II in recent years. While these need to be reviewed and strengthened, there is also a need to engage with questions of designing learning experiences for older children that help them understand concepts and create and 'own' the knowledge that they learn. We are now seeing a small shift away from the focus on 'factual knowledge', but teacher preparation, planning of classroom practice, textbook preparation, and evaluation need to support this shift more decisively.

There is a need for incorporating flexibility in planning and adapting textbook content to designing topic learning, so as to move towards the NPE-86 goal of breaking out of watertight compartments. For this, it is necessary to build the capabilities and confidence of teachers to autonomously plan their teaching in response to the needs and demands of children's learning. Currently, pedagogic reform efforts are still very centralised. Effective decentralisation would be possible through the greater involvement of Cluster and Block Resource Centres, the availability of local resource persons, and of resource and reference materials for the use of teachers.

2.4.4 Approaches to Planning

Our educational practice is still based on limited 'lesson plans' aimed at achieving measurable 'behaviours'; according to this view, the child is akin to a creature that can be trained, or a computer that can be programmed. Hence, there is too much focus on 'outcomes', and presenting knowledge divided into bits of information to be memorised directly from the text or through activities after 'motivating' children, and finally on evaluating to see if children remember what they have learnt. Instead, we need to view the child as 'constructing knowledge' all the time. This is true not only of 'cognitive subjects' such as mathematics and science, language and social science, but equally of values, skills and attitudes.

This perspective on the learner may sound 'obvious', but, in fact, many teachers, evaluators, and textbook writers still lack the conviction that this can become a reality.

- The term 'activity' is now a part of the registerof most elementary schoolteachers, but in many cases this has just been grafted onto the 'Herbartian' lesson plan, still driven by 'outcomes' at the end of each lesson. There is now more talk of competencies, but these competencies are still pegged onto lessons much in the manner of 'outcomes'. Instead, teachers need to develop the ability to plan 'units' of four or five sessions for each topic. The development of understanding and of competencies is also possible only through repeated opportunities to use the competencies in different situation, and in a variety of ways. While the development of knowledge, understanding and skills can be assessed both at

Organising experiences

Observing something happen, say, the process of seed germination, in a real situation or observing different stages of milk collection, processing and packaging different kinds of products in a dairy farm.

Participating in an exercise involving body and mind such as planning a role play around a theme and presenting it.

Talking about and reflecting on something the child has experience of (e.g. dialogue on gender-differentiated practices in the family and society or participating in a mental game of numbers).

Making something, say, a system of gear wheels or trying out an experiment to lift a load using a system of pulleys.

After the experience, teachers could organise a discussion, an exercise involving, writing, drawing and display. She could identify along with the children questions to be thought about and answered.

She could connect the experience with textbook knowledge and other references and deepen the experience.

Such experiences and post-experience activities would be valuable at any level of schooling. Only the nature and complexity of the experience would need to change over the years. Language is key to organising experiences. Hence, there should be a proper coordination between the kind of experience and the level of language development.

the end of a unit, and revisited at a later date, the assessment cycle for competencies needs to be longer.

- Activities could enable teachers to give individualised attention to children, and to make alterations in a task depending on their requirements and variations in the level of interest. In fact, teachers could also consider involving children and older learners in planning the class work, such variety would bring tremendous richness to the classroom processes. It would also allow teach ers to respond to the special needs of some children without making it seem as if it is an obvious exception. There is still not enough engagement on the part of the teacher with the learning ofeach child; children are treated en masse, and only those who are regarded as 'stars' or 'problematic' are noticed. All children would benefit from such attention.
- A lesson plan or unit plan for an inclusive class should indicate how the teacher alters the ongoing activity to meet the different needs of children. Failure to learn is currently being mechanically addressed through 'remediation', which usually means simply repeating lessons. Many teachers are also looking for 'cures' to set right the problems that some children may experience. They still find it difficult to individualise learning for children by building upon the strengths that children may have.
- Teachers need to understand how to plan lessons so that children are challenged to think and to try out what they are learning, and not simply repeat what is told to them. A new problem is that in the name of 'activities' and 'play way' methods, a lot of learning is being diluted by giving children things to do that are far below their capability. One concern is that a focus on activities would become too time consuming and make greater demands on teachers, time. Certainly, doing activities requires that time be spent in planning and preparing for activities. Initially, teachers need to make an effort to establish the classroom culture for activities and to establish the rules that will govern the space and use of materials.
- Planning with the support of appropriate material resources for individualised, small group and whole group work is the key to effective management of instruction in a multigrade, multiability or vertically grouped classroom. Instead of finding ways of juggling lesson plans based on mono-grade textbooks, teachers would need to devise, in advance, thematic topic plans in order to engage learners with exercises created for their level.
- The practices of teachers in classrooms, the mate rials they use, and the evaluation techniques employed must be internally consistent with each other.

2.4.5 Critical Pedagogy

Teacher and student engagement is critical in the classroom because it has the power to define whose knowledge will become a part of school-related knowledge and whose voices will shape it. Students are not just young people for whom adults should devise solutions. They are critical observers of their own conditions and needs, and should be participants in discussions and problem solving related to their education and future opportunities. Hence children need to be aware that their experiences and perceptions are important and should be encouraged to develop the mental skills needed to think and reason independently and have the courage to dissent. What children learn

out of school — their capacities, learning abilities, and knowledge base — and bring to school is important to further enhance the learning process. This is all the more critical for children from underprivileged backgrounds, especially girls, as the worlds they inhabit and their realities are underrepresented in school knowledge.

Participatory learning and teaching, emotion and experience need to have a definite and valued place in the classroom. While class participation is a powerful strategy, it loses its pedagogic edge when it is ritualised, or merely becomes an instrument to enable teachers to meet their own ends. True participation starts from the experiences of both students and teachers.

Critical pedagogy provides an opportunity to reflect critically on issues in terms of their political, social, economic and moral aspects. It entails the acceptance of multiple views on social issues and a commitment to democratic forms of interaction. This is important in view of the multiple contexts in which our schools function. A critical framework helps children to see social issues from different perspectives and understand how such issues are connected to their lives. For instance, understanding of democracy as a way of life can be chartered through a path where children reflect on how they regard others (e.g. friends, neighbours, the opposite sex, elders, etc.), how they make choices (e.g. activities, play, friends, career, etc.), and how they cultivate the ability to make decisions. Likewise, issues related to human rights, caste, religion and gender can be critically reflected on by children in order to see how these issues are connected to their everyday experiences, and also how different forms of inequalities become compounded and are perpetuated. Critical pedagogy facilitates collective decision making through open discussion and by encouraging and recognising multiple views.

Why should stereotypes persist?

A matter of serious concern is the persistence of stereotypes regarding children from marginalised groups, including SC *and* ST*, who traditionally have not had access to schooling or learning. Some learners have been historically viewed as uneducable, less educable, slow to learn, and even scared of learning. There is a similar stereotype regarding girls, which encourages the belief that they are not interested in playing games, or in mathematics and science. Yet another set of stereotypes is applied to children with disabilities, perpetuating the notion that they cannot be taught along with other children. These perceptions are grounded in the notion that inferiority and inequality are inherent in gender, caste and physical and intellectual disability. There are a few success stories, but much larger are the numbers of learners who fail and thus internalise a sense of inadequacy. Realising the constitutional values of equality is possible only if we prepare teachers to treat all children equally. We need to train teachers to help them cultivate an understanding of the cultural and socio-economic diversity that children bring with them to school.*

Many of our schools now have large numbers of first-generation school goers. Pedagogy must be reoriented when the child's home provides any direct support to formal schooling. First-generation school goers, for example, would be completely dependent on the school for inculcating reading and writing skills and fostering a taste for reading, and for familiarising them with the language and culture of the school, especially when the home language is different from the language of school. Indeed they need all the assistance they can get. Many such children are also vulnerable to conditions prevailing at home, which might make them prone to lack of punctuality, irregularity and inattentiveness in the classroom. Mobilising intersectoral support for freeing children from such constraints, and for designing a curriculum sensitive to these circumstances, therefore is essential.

When children and teachers share and reflect on their individual and collective experiences without fear of judgement, it gives them opportunities to learn about others who may not be a part of their own social reality. This enables them to understand and relate to differences instead of fearing them. If children's social experiences are to be brought into the classroom, it is inevitable that issues of conflict will need to be addressed. Conflict is an inescapable part of children's lives. They constantly encounter situations that call for moral assessment and action, whether in relation to subjective experiences of conflict involving the self, family and society, or in dealing with exposure to violent conflict in the contemporary world. To use conflict as a pedagogic strategy is to enable children to deal with conflict and facilitate awareness of its nature and its role in their lives.

Learning to question received knowledge critically, whether it is found in a 'biased' textbook, or other literary sources in their own environments, can be built by encouraging learners to comment, compare and think about elements that exist in their own environment. Women and dalit activists have used songs as a powerful medium for discussion, comment and analysis. Repositories of knowledge exist in different mediums, hence all these forms, whether television programme, advertisements, songs, paintings, etc., need to be brought into create a dynamic interaction among learners themselves.

A pedagogy that is sensitive to gender, class, caste and global inequalities is one that does not merely affirm different individual and collective experiences but also locates these within larger structures of power and raises questions such as, who is allowed to speak for whom? Whose knowledge is most valued? This requires evolving different strategies for different learners. For example, encouraging speaking up in class may be important for some children, while for others it may be learning to listen to others.

The role of teachers is to provide a safe space for children to express themselves, and simultaneously to build in certain forms of interactions. They need to step out of the role of 'moral authority' and learn to listen with empathy and without judgement, and to enable children to listen to each other. While consolidating and constructively stretching the limits of the learner's understanding, they need to be conscious of how differences are expressed. An atmosphere of trust would make the classroom a safe space, where children can share experiences, where conflict can be acknowledged and constructively questioned, and where resolutions, however tentative, can be mutually worked out. In particular, for girls and children from under-privileged social groups, schools and classrooms should be spaces for discussing processes of decision making, for questioning the basis of their decisions, and for making informed choices.

2.5 KNOWLEDGE AND UNDERSTANDING

The question, 'What should be taught to the young'? derives from a deeper question, namely, What aims are worth pursuing in education? The answer is a vision of the capabilities and values that every individual must have and a socio-political and cultural vision for society. This is not a single aim, but a set of aims. So also the content selected seeks to do justice to the entire set of aims; it has to be comprehensive and balanced. The curriculum needs to provide experiences that build the knowledge base through a progressive introduction to the capabilities of thinking rationally, to understand the world through various disciplines, foster aesthetic appreciation and sensitivity towards others, to work and to participate in economic processes. This section discusses the nature and forms of knowledge and

Talking Pictures

Show the class a picture of a household with various members of the family performing different tasks. The difference is that the father is cooking, the mother fixing a light bulb, the daughter returning from school on a bicycle, and the son milking a cow, the other sister climbing a mango tree, and the other son sweeping the floor. The grandfather is sewing on a button, and the grandmother is doing the accounts.
Ask the children to talk about the picture.
What are the 'works' they can identify?
Do they think that there is any work that these people should not be doing?
Why?
Involve them in a discussion on the dignity of labour, equality and gender.
Discuss the importance of each individual being self - sufficient and complete.

This can be done for other topics such as good and bad work, caste stereotyping and the value - added nature of work through similar talking pictures.

understanding as necessary elements terrains for making informed curricular choices and approaches to content.

Knowledge can be conceived as experience organised through language into patterns of thought (or structures of concepts), thus creating meaning, which in turn helps us understand the world we live in. It can also be conceived of as patterns of activity, or physical dexterity with thought, contributing to acting in the world, and the creating and making of things. Human beings over time have evolved many *bodies of knowledge,* which include a repertoire of *ways of thinking, of feeling and of doing things,* and constructing more knowledge. All children have to re-create a significant part of this wealth for themselves, as this constitutes the basis for further thinking and for acting appropriately in this world. It is also important to learn to participate in the very process of knowledge creation, meaning making and human action, i.e. work. Conceiving knowledge in this broad sense directs us to the importance of examining knowledge in terms of not only the 'product', but also the underlying principles of how it is created, how it is organised, who accesses it, and what it is used for. It suggests that in the curriculum, there must be as much focus on the process of learning, on how learners engage with and reconstruct knowledge, as on the content of what is learnt.

If, on the other hand, knowledge is regarded as a finished product, then it is organised in the form of information to be 'transferred' to the child's mind. Education would concern itself with maintaining and transmitting this store - house of human knowledge. In this view of knowledge, the learner is conceived of as a passive receiver, while in the former there is a dynamic engagement with the world through observing, feeling, reflecting, acting, and sharing.

The curriculum is a plan to develop capabilities that are likely to help achieve the chosen educational aims. The range of human capabilities is very wide, and through education we cannot develop them all. The concern is therefore with those that are necessary and significant in relation to our aims, which offer potential for further development, and for which we have some pedagogic knowledge.

2.5.1 Basic Capabilities

Children's basic capabilities are those that form the broad basis for the development of understanding, values and skills.

a. **Language** and other forms of expression provide the basis for meaning making, and sharing with others. They create possibilities of development of understanding and knowledge, providing the ability to symbolise, codify, and to remember and record.

Development of language for a child is synonymous with development of understanding and identity, and also the capability of relating with others. It is not only verbal languages with scripts, but also languages without scripts, sign languages, scripts such as Braille and the performing arts, that provide the bases for making meaning and the expression.

b. **Forming and sustaining relationships** with the social world, with the natural world, and with one's self, with emotional richness, sensitivity and values. This gives meaning to life, providing it with emotional content and purpose. This is also the basis for ethics and morality.

c. **Capabilities for work and action** involves the coordination of bodily movement with thought and volition, drawing on skill and understanding, and directing oneself to achieve some purpose or create something. It also involves handling tools and technologies, and the ability to manipulate and organise things and experiences, and to communicate.

2.5.2 Knowledge in Practice

A vast array of human activities and practices sustain social living and culture. Crafts such as weaving, carpentry and pottery, and occupations such as farming and shopkeeping, constitute alongwith and performing and visual arts and sports a valuable form of knowledge. These forms of knowledge are of a practical nature, tacit and often only partially articulated.

Many of them involve abilities that are developed. These include the ability to conceptualise and imagine products that are useful or aesthetic, the knowledge of and ability to work with materials to fashion a product, knowledge of one's own abilities, appreciation of team work, and attitudes of persistence and discipline. This is true whether it is an object being fashioned or whether it is a play a to be presented to an audience.

Describing these activities as skills draws attention to only the dexterities that are involved, but not to the considerable understanding of the social and natural world and the self that each of these forms of practice involves. Like accepted academic disciplines, these crafts and trades too have their traditions and expert practitioners. The knowledge relevant to each of these crafts, occupations and art forms is cumulatively developed and is passed on through experience and reflection to the next generation of practitioners. Therefore, each one of them is a discipline of practical knowledge. The Indian heritage of such forms of

> A craft like carpentry involves the ability to conceptualise and design the object to be made, an understanding of its value in the society (socio-cultural, aesthetic and economic significance), knowledge of materials available and the most suitable in terms of quality and cost for the product to be made, knowledge of where to source materials, the ability to plan and execute the fashioning of the product from beginning to end, using one's own skills and sourcing relevant skills from others, maintaining the necessary tools, judging for quality, creativity and excellence in craftsmanship.
>
> A sport like *kabaddi* involves physical stamina and endurance, knowledge of rules of the game, skills and physical dexterity, and knowledge of one's own capacities, ability to plan and coordinate as a team, to assess the other team, and to strategise to win.

Oral and Craft Traditions

The oral lore and traditions of craft are a unique intellectual property, varied and sophisticated, preserved by innumerable groups in our society, including women, marginalised, and communities, and tribal people. By including these in the curriculum for all children, we could provide them with windows of understanding and kernels of ideas, skills and capabilities that could be worked into forms and inventions that could enrich their own lives and society. School privileges the literate, but cannot afford to continue to ignore the oral. Sustaining oral skills of all kinds is important.

practical knowledge is vast, varied and rich. As productive skills, they are an invaluable part of the economy.

More reflection and research is needed in order to understand the epistemological structure of these practical disciplines. Understanding how they are practised and learnt, and how to formalise their learning, are questions of sociological importance as traditional occupations are linked to caste groups and are gendered. It is necessary to realise their curricular significance, not only as forms of work but equally as forms of knowledge, and as mediums for other learning. This important area of human knowledge needs to become a substantial part of the school curriculum.

2.5.3 Forms of Understanding

Knowledge can be categorised based on distinct kinds of concepts and meanings involved and processes of validation and justification. Each involves its own kind of 'critical thinking', its own way of verifying and authenticating knowledge, and its own kind of 'creativity'.

Mathematics has its own distinctive concepts, such as prime number, square root, fraction, integer and function. It also has its own validation procedure, namely, a step-by-step demonstration of the necessity of what is to be established. The validation procedures of mathematics are never empirical, never based on observation of the world or on experiment, but are demonstrations internal to the system specified by an appropriate set of axioms and definitions.

The *Sciences*, like the systems of mathematics, have their own concepts, often interconnected through theories, and are attempts to describe and explain the natural world. Concepts include atom, magnetic field, cell, and neuron. Scientific inquiry involves observation and experimentation to validate predictions made by theory (hypotheses), which may be aided by instruments and controls. Formalisation into theory and model building can sometimes involve mathematics, but it is only with reference to observations and not to mathematical accuracy that truth is tested. The attempt is to furnish a narrative that in some way 'corresponds' to reality.

The Social Sciences and *Humanities* have their own concepts, for example, community, modernisation, culture, identity, and polity. The Social Sciences aim at developing a generalised and critical understanding of human beings and human groups in society. The Social Sciences concern themselves with description, explanation and prediction in the social world. The Social Sciences deal with hypotheses that are about human behaviour in collective living, and their validation finally depends on the observations made in the society. With regard to the process of knowledge formation, Science and the Social Sciences are almost identical. But there are two differences that are of great relevance in curriculum planning. First, the Social Sciences study human behaviour which is governed by 'reasons', while nature is governed by 'cause and effect'. Second, the findings of the Social Sciences often raise issues of

ethics and desirability while natural phenomena can be understood, raising ethical questions only when they enter into the domain of human action.

Art and aesthetics have many words in common, such as rhythm, harmony, expression and balance, though giving them new senses or new ranges of application. Art productions cannot be judged against reality or investigated for 'truth'. Although there is ample scope for subjective judgement in art, it is also possible to educate the artistic imagination to critically assess what is good and what is not.

Ethics is concerned with all human values, and with the rules, principles, standards and ideals which give them expression. In relation to action and choice, therefore, ethics must be conceded primacy over each of the forms of understanding. Ethical understanding involves understanding reasons for judgements—for what makes some things and some acts right and others wrong—regardless of the authority of the persons involved. Furthermore, such reasons will be reasons for anyone; reason, equality and personal autonomy are therefore very intimately connected concepts.

Philosophy involves a concern, on the one hand, with analytical clarification, evaluation and synthetic coordination of the aforementioned forms of understanding in relation to life, and, on the other hand, with the whole, the ultimate meaning and the transcendent.

The basic capabilities, the knowledge of practice and the forms of understanding are the core ways in which human experience has been elaborated in the course of history. All but the simplest kinds of human activity draw upon them—the liberal professions, technology, industry and commerce. They are central to human culture. Imagination and critical thinking are linked in obvious ways with the development of understanding and reason, and so are the emotions.

Each of these knowledge areas involves a special vocabulary, concepts, theories, descriptions and methodologies. Each provides a 'lens' through which to view the world, to understand, to engage, and to act in it. These areas have developed, and continue to grow, through the contributions of people in the past. They have also changed in their structure and emphasis. A variety of intelligence and forms of knowing come into play while learning these areas: 'formal modes' of explicit reasoning and articulation; looking for and evaluating evidence; 'experiential' and tacit knowing through doing and undergoing the experience; coordinating and observing; and 'practical' engagement, either by oneself or in coordination with others in making or accomplishing something, in addressing problems and issues while charting a course of action. Creativity and excellence are integral to all these forms of knowledge and knowing.

This accumulation of human culture and knowledge, and ways of knowing and doing things, is

Layers of understanding

Comprehension: understanding the language, and the (linguistic) contents of what is said.

Reference: understanding what is being talked about—what the terms and concepts refer to.

Epistemic: understanding what counts as evidence, what makes a statement true, how to seek evidence and judge truth.

Relational and Significant: understanding through developing interconnections between different facts and concepts and weaving them into an interconnected web of 'known things', understanding relationships between different things, and the significance of each in relation to the other.

a valuable part of the inheritance of human society. All our children have a right to access this knowledge, to educate and enrich their common sense, to develop and discover themselves and the world of nature and people, through these lenses and tools.

2.6 RECREATING KNOWLEDGE

These capabilities, practices, and skills of understanding are what we seek to develop through the school curriculum. Some of them readily lend themselves to being formulated as 'subjects' of study such as mathematics, history, science, and the visual arts. Others, such as ethical understanding, need to be interwoven into subjects and activities. The basic capabilities of language require both approaches, and aesthetic understanding also readily lends itself to both approaches. All these areas require opportunities for project activities, thematic and interdisciplinary courses of studies, field trips, use of libraries and laboratories.

This approach to knowledge necessitates a move away from 'facts' as ends in themselves, and a move towards locating facts in the process through which they come to be known, and moving below the surface of facts to locate the deeper connections between them that give them meaning and significance.

In India, we have traditionally followed a subject-based approach to organising the curriculum, drawing on only the disciplines. This approach tends to present knowledge as 'packaged', usually in textbooks, along with associated rituals of examinations to assess, knowledge acquisition and marks as a way of judging competence in the subject area. This approach has led to several problems in our education system. First, those areas that do not lend themselves to being organised in textbooks and examined through marks become sidelined and are then described as 'extra' or 'co-curricular', instead of being an integral part of the curriculum. These rarely receive the attention they deserve in terms of preparation by teachers or school time. Areas of knowledge such as crafts and sports, which are rich in potential for the development of skill, aesthetics, creativity, resourcefulness and team work, also become sidelined. Important areas of knowledge such as work and associated practical intelligences have been completely neglected, and we still do not have an adequate curriculum theory to support the development of knowledge, skills and attitudes in these areas.

Second, the subject areas tend to become watertight compartments. As a result, knowledge seems fragmented rather than interrelated and integrated. The discipline, rather than the child's way of viewing the world, tends to become the starting point, and boundaries get constructed between knowledge in the school and knowledge outside.

Third, what is already known gets emphasised, subverting children's own ability to construct knowledge and explore novel ways of knowing. Information takes precedence over knowledge, lending itself to producing bulky textbooks, 'quizzing' and methods of mechanical retrieval rather than understanding and problem solving. This tendency of mistaking information for knowledge leads to 'loading' the curriculum with too many facts to be memorised.

Fourth, there is the issue of including 'new subjects'. The need for subjects addressing contemporary concerns of society is important. But there has been a misplaced tendency to address these concerns in the school curriculum by 'creating' new subjects, producing related textbooks and devising methods of evaluation for them. These concerns may be far better addressed if they are incorporated in the curriculum through existing subjects and ongoing activities. Needless to say, adding new areas as 'subjects'

only increases the curriculum load, and perpetuates undesirable compartmentalisation of knowledge.

Finally, the principles for selecting knowledge for inclusion in the curriculum are not well worked out. There is insufficient consideration of developmental appropriateness, logical sequencing and connection between different grades, and overall pacing, with a few or no opportunities to return to earlier concepts. Further, concepts that cut across subject areas, such as in secondary school mathematics and in physics, are not placed in relation to one another

2.7 Children's Knowledge and Local Knowledge

The child's community and local environment form the primary context in which learning takes place, and in which knowledge acquires its significance. It is in interaction with the environment that the child constructs knowledge and derives meaning. This area has generally been neglected both in the conceptualisation of textbooks and in pedagogic practices. Hence, in this document, we emphasise the significance of contextualising education: of situating learning in the context of the child's world, and of making the boundary between the school and its natural and social environment porous. This is not only because the local environment and the child's own experiences are the best 'entry points, into the study of disciplines of knowledge, but more so because the aim of *knowledge is to connect with the world*. It is not a means to an end, but both means and end. This does not require us to reduce knowledge to the functional and immediately relevant, but to realise its dynamism by connecting with the world through it.

Unless learners can locate their individual standpoints in relation to the concepts represented in textbooks and relate this knowledge to their own experiences of society, knowledge is reduced to the level of mere information. If we want to examine how learning relates to future visions of community life, it is crucial to encourage reflection on *what it means to know something*, and how to use what we have learnt. The learner must be recognised as a proactive participant in his or her own learning.

Day after day children bring to school their experiences of the world around them the trees that they have climbed, the fruits they have eaten, the birds they have admired. All children are alive to the natural cycles of day and night, of the weather, the water, the plants and the animals that surround them. Children, when they enter Class I already have a rich language base of small numbers, and the rudiments of operations are already in place. Yet rarely do we hear the knowledge that they already have and which they bring into the classroom. Rarely do we ask children to

Selecting Knowledge

Domains of knowledge have grown enormously, so that it is necessary to select what is to be included in the curriculum.

Relevance: This could lead to very functionalist choices, with mistaken notions relating to usefulness in later adult life. This may be completely unsuited to children's engagement in knowledge construction in the present, and hence in no way contributes to learning for the future.

Interest: A useful measure, but this should not be reduced to simplistic notions of what children enjoy, such as 'cartoon' figures or games. Rather the measure should be the ability to engage a child and keep her interested and self - motivated to engage in the task at hand.

Meaningful: The most important measure. Only if the child finds the activity or knowledge being learnt meaningful, will its inclusion in the curriculum be justified.

talk about or refer to the world outside the school during our lessons and teaching. Instead we resort to the convenience of the printed word and picture, all of which are poor replicas of the natural world. Worse still, today in the name of computer-aided learning, the living world is being turned into animation strips that children are expected to watch on their computer screens. Before starting a lesson on living and non-living, if a teacher was to take her class out on a walk through a field near the school, and on returning asked each child to write the names of ten living things and ten non-living things that she/he saw, the results would be amazing. Children in Mahabalipuram in Tamil Nadu may include in their list of things sea shells, pebbles and fish, and those in Chhattisgarh near the Dandakaranya forest may include nest, bee hive, and anklet. Instead, children are usually required to look at a drawing in the textbook, or a list of words, and sort the things out as living and non-living. During a lesson on water pollution, children could examine the water sources and water bodies and then connect these with different types of pollution. This exercise could also raise issues regarding how lack of safe water affects health. Instead, children are expected to see pictures of polluted water and comment on them. When studying the moon and its phases, how many teachers actually ask the children to look at the moon at night and then talk about it the next day? Instead of asking children the names of local birds and trees, our textbooks name 'ubiquitous' things that seem to belong everywhere and yet belong nowhere. Only if children in, say Class VIII, can connect the chapter on photosynthesis with the real plants around would they think of asking questions such as, 'How do crotons, which have coloured leaves but no green leaves, manage to manufacture their food?' Only when the living world around becomes available for critical reflection within the school will children become alive to the issues of the environment and nurture their concern for it.

The local environment is thus a natural learning resource, which must be privileged when making choices regarding what should be included, what

Participating in the Generation of Knowledge

Given its intrinsic variability, each manifestation of the environment tends to be unique. Its understanding cannot, therefore, be arrived at solely on the basis of the classical scientific approach of experimentation, calling for extensive replication. Instead, an understanding of such complex systems requires extensive locale-and time-specific observations, careful documentation, and an elucidation of the patterns and underlying processes based on comparisons of systems that differ from each other in some specific ways. There is hardly any good quality documentation available today of the many facets of India's environment, such as the depth of the underground water table, and it is feasible to create such documentation on the basis of student projects. It would be possible to upload the results of such projects on a publicly accessible website, thereby creating a transparent and comprehensive database on India's environment. By inviting not only experts, but also all interested citizens to assess the quality of such projects and augment their results, a self-correcting system could be set up that would lead to an organic growth of our understanding of the Indian environmental scenario and concrete ways of undertaking positive action. Such information collated annually over the years, and also shared with and compared with other regions, and collated centrally would produce a significant understanding of ecological changes and develop a perspective on what is happening and why through comparisons. Including such knowledge-generation activities as a part of the educational process would also greatly enhance the quality of the educational experience.

concrete examples should be cited in planning for their transaction in the classroom. In the case of content selection for the Social Sciences and language, it is important to keep in mind the ideals and values enshrined in the Constitution. Inclusion of the local context in classroom transaction would imply a serious attempt by the teacher to make choices in a manner that is pedagogically imaginative and ethically sound. When children living in Kerala are introduced to the habitat of the desert in Rajasthan, the descriptions must be rich and detailed so that they can get a feel of the natural world there, in all its particularities and diversity, rather than evoking images of the typical sand dune and the camel. They should wonder how in a place so hot people wear more rather than fewer clothes. They should also be able to compare life there with life around them in their local community, and ask what things would happen in the same way, and what things would happen differently.

The local environment consists not only of the physical and natural world but also the socio-cultural world. All children have a voice at home, and it is essential for the school to ensure that their voices continue to be heard in the classroom as well. Communities also have rich cultural resources: local stories, songs, jokes and riddles, and art, all of which can enrich language and knowledge in schools. They also have rich oral histories. By imposing silence we stifle children.

2.8 SCHOOL KNOWLEDGE AND THE COMMUNITY

Experiences of the socio-cultural world also need to become a part of the curriculum. Children need to find examples of the plurality of peoples and ways of life represented in the textbooks. These portrayals need to ensure that no community is oversimplified, labelled, or judged. It may even be better for children to study and generate portrayals of the local social groups as a part of their social science studies. They can then directly interact with the gram panchayat representative, who may be invited to the school to speak about the extent to which decentralisation has helped in addressing local civic issues. Local oral history could also be connected with regional history and national history. But the social context also calls for a much greater critical awareness and critical engagement on the part of curriculum developers and teachers. Community-based identities, of gender, caste, class and religion are primary identities, but they can also be oppressive and reaffirm social inequalities and hierarchies. School knowledge can also provide a lens

Local Knowledge Traditions

Many communities and individuals in India are a rich storehouse of knowledge about many aspects of India's environment, acquired over generations and handed down as traditional knowledge, as well as through an individual's practical experience. Such knowledge may pertain to: naming and categorising plants, or ways of harvesting and storing water, or of practising sustainable agriculture. Sometimes these may be different from the ways in which school knowledge approaches the subject. At other times, it may not be recognised as something that is important. In these situations, teachers could help children develop projects of study based on local traditions and people's practical ecological knowledge; this may also involve comparing these with the school approach. In some cases, as in the case of classifying plants, the two traditions may be simply parallel and be based on different criteria considered significant. In other cases, for example the classification and diagnosis of illnesses, it may also challenge and contradict local belief systems. However, all forms of local knowledge must be mediated through Constitutional values and principles.

through which children can develop a critical understanding of their social reality. It could also provide them space to talk about their experiences and anxieties within their homes.

Communities may also have questions about the inclusion or exclusion of particular knowledge and experiences in the school curriculum. The school must then be prepared to engage with communities to listen to their concerns, and to persuade them to see the educational value of such decisions. For this, teachers must know the reasons why something is included while something else is not. They must also be able to win the trust of parents in matters like allowing children to use home language in school, or teaching about sexuality and reproduction, or play-way methods in primary school, or encouraging boys to sing and dance. It is not a good enough explanation to say that the decisions were taken at the state level. If we are to ensure participation of children of all groups in our secular education, we will have to discuss our curricular choices with others who are legitimate stakeholders in education.

2.9 SOME DEVELOPMENTAL CONSIDERATIONS

Children's interests, physical skills, linguistic capacity, and ability for abstract thinking and generalisation develop over the span of schooling, from the pre-school period through higher secondary school. This is a period of intensive growth and development, and also of fundamental shifts and changes in interests and capabilities. Hence, it is an important dimension of determining the approach to, and selection and organisation of the areas of the curriculum.

The creation or recreation of knowledge requires an experiential base, language abilities, and interaction with other humans and the natural world. Children entering school for the first time have already begun constructing knowledge of the world. Everything they learn later will be in relation to this knowledge that they bring into the classroom. This knowledge is also intuitive. School provides opportunities to build on this in a more conscious and engaged manner. At the early stage of learning, from pre-school to the primary

Some principles regarding the approach to knowledge in the curriculum :

- √ Acquiring a critical perspective on social reality and the natural environment through the lenses provided by the subject matter.
- √ Connecting with the local and the contextualised in order to 'situate' knowledge and realising its 'relevance' and 'meaningfulness'; to reaffirm one's experiences outside school; to draw one's learning from observing, interacting with, classifying, categorising, questioning, reasoning and arguing in relation to these experiences.
- √ Making connections across disciplines and bringing out the interrelatedness of knowledge.
- √ Realising the 'fruitfulness' and 'openness' of enquiry, and the provisional nature of truth.
- √ Engaging with 'local knowledge'/indigenous practices in the local area, and relating these to school knowledge wherever possible.
- √ Encouraging questions and leaving space open for the pursuit of new questions.
- √ Being sensitive to the issues of 'equality' in classroom transaction as well as established stereotypes and discrimination regarding learnability of the knowledge area by different groups (e.g. girls not being given field-based projects, the blind being excluded from the option of learning mathematics, etc.).
- √ Developing the imagination, and keeping imagination and fantasy alive.

school years, an important place must be given to language and mathematics in all activities across the curriculum. The division into subjects is not very significant, and the knowledge areas discussed above can be totally integrated and presented to children in the form of learning experiences of the environment. This should include an enriching interaction with the natural and social environment, working with one's hands, and understanding of social interactions, and developing one's aesthetic abilities. These early integrated experiences of the natural and social environment would later become demarcated into science and the social sciences in the middle school years.

The upper primary or middle school period may be the place for the emergence of better defined subject areas, taking into consideration the above-mentioned forms of knowledge. At this stage it should be possible to create spaces across subjects in which children engage in the process of data collection, natural, social, mathematical or linguistic, to classify and categorise, and also analyse the same through certain knowledge areas such as ethical understanding and critical thinking. The creation of a space for explorations into social issues and knowledge without boundaries could at this stage go a long way in encouraging rational thinking.

By the time children reach the secondary stage of education, they have acquired a sufficient knowledge base, experience, language abilities and maturity to engage with different forms of knowledge in the full sense: concepts, structure of body of knowledge, investigation methods and validation procedures. Therefore, the subjects could be more closely linked with the basic forms as listed above and the disciplines as they are recognised in higher education today.

The issues of adequate representation of all forms of knowledge, and emphasis on similarities, special characteristics, and the widest possible interconnections between them, become important when the subject areas are more clearly defined.

3.1 Language

3.2 Mathematics

3.3 Science

3.4 Social Sciences

3.5 Art Education

3.6 Health and Physical Education

3.7 Work and Education

3.8 Education for Peace

3.9 Habitat and Learning

3.10 Schemes of Study and Assessment

3.11 Assessment and Evaluation

Chapter 3: Curricular Areas, School Stages and Assessment

The main areas relevant for curricular planning have remained remarkably stable for a long time, despite major changes in social expectations and the academic study of different broad disciplines. It is important that each curricular area is revisited in depth, so that specific points of entry can be identified in the context of emerging social needs. In this respect, the status and role of the arts and health and physical education deserve special attention in view of the peculiar orbit of the 'extra-curricular' to which they were relegated almost a century ago. Aesthetic sensibility and experience being the prime sites of the growing child's creativity, we must bring the arts squarely into the domain of the curricular, infusing them in all areas of learning while giving them an identity of their own at relevant stages. Work, peace, and health and physical education have a similar case. All three have a fundamental significance for economic, social and personal development. Schools have a major role to play in ensuring that children are socialised into a culture of self-reliance, resourcefulness, peace-oriented values and health.

3.1 LANGUAGE

Language in this document subsumes bi-/ multilingualism. And when we talk of home language(s) or mother tongue(s), it subsumes the languages of home, larger kinship group, street and neighbourhood, i.e. languages(s) that a child acquires naturally from her/his home and societal environment. Children are born with an innate language faculty. We know from our everyday experiences that most children, even before they start their schooling, internalise an extremely complex and rule-governed system called language, and possess full linguistic capabilities. In many cases, children come to school with two or three languages already in place at the oral-aural level. They are able to use these languages not only accurately but also appropriately. Even differently talented children who do not use the spoken languages develop equally complex alternative sign and symbol systems for expression and communication.

Languages also provide a bank of memories and symbols inherited from one's fellow speakers and created in one's own lifetime. They are also the medium through which most knowledge is constructed, and hence they are closely tied to the thoughts and identity of the individual. In fact, they are so closely bound with identity that to deny or wipe out a child's mother tongue(s) is to interfere with the sense of self. Effective understanding and use of languages(s) enables the child to make connections between ideas, people and things, and to relate to the world around.

Multilingualism, which is constitutive of the identity of a child and a typical feature of the Indian linguistic landscape, must be used as a resource, classroom strategy and a goal by a creative language teacher. This is not only the best use of a resource readily available, but also a way of ensuring that every child feels secure and accepted, and that no one is left behind on account of his/her linguistic background.

If we wish to launch any sound programme for language teaching in schools, it is important to recognise the inbuilt linguistic potential of children as well as to remember that languages get socio-culturally constructed and change in our day-to-day interactions. Language(s) in education would ideally build on this resource, and would strive to enrich it through the development of literacy (scripts including Braille) for the acquisition of academic knowledge. Children with language-related impairments should be introduced to standard sign languages, which can support their continued growth and development to the fullest. A recognition of the linguistic abilities of learners would encourage them to believe in themselves and their cultural moorings.

3.1.1 Language education

The linguistic diversity of India poses complex challenges but also a range of opportunities. India is unique not only in that a large number of languages are spoken here but also in terms of the number and variety of language families that are represented in those languages. There is no other country in the world in which languages from five different language families exist. Even though they are so distinct structurally as to merit classification as different language families, namely, Indo-Aryan, Dravidian, Austro-Asiatic, Tibeto-Burman and Andamanese, they constantly interact with each other. There are several linguistic and sociolinguistic features that are shared across languages that bear witness to the fact that different languages and cultures have coexisted in India for centuries, enriching each other. Classical languages such as Latin, Arabic, Persian,

Several studies have shown that bilingual proficiency raises the levels of cognitive growth, social tolerance, divergent thinking and scholastic achievement. Societal or national-level multilingualism is a resource that can be favourably compared to any other national resource.

Tamil and Sanskrit are rich in their inflectional grammatical structure and aesthetic value, and can illuminate our lives, as many languages keep borrowing words from them.

Today, we know for certain that bilingualism or multilingualism confers definite cognitive advantages. The three-language formula is an attempt to address the challenges and opportunities of the linguistic situation in India. It is a strategy that should really serve as a launching pad for learning more languages. It needs to be followed both in letter and spirit. Its primary aim is to promote multilingualism and national harmony. The following guidelines may help us achieve this aim:

- Language teaching needs to be multilingual not only in terms of the number of languages offered to children but also in terms of evolving strategies that would use the multilingual classroom as a resource.
- Home language(s) of children, as defined above in 3.1, should be the medium of learning in schools.
- If a school does not have provisions for teaching in the child's home language(s) at the higherlevels, primary school education must still be covered through the home language(s). It is imperative that we honour the child's home language(s). According to Article 350A of our Constitution, 'It shall be the endeavour of every State and of every local authority within the State to provide adequate facilities for instruction in the mother-tongue at the primary stage of education to children belonging to linguistic minority groups'.
- Children will receive multilingual education from the outset. The three-language formula needs to be implemented in its spirit, promoting multilingual communicative abilities for a multilingual country.
- In the non-Hindi-speaking states, children learn Hindi. In the case of Hindi speaking states, children learn a language not spoken in their area. Sanskrit may also be studied as a Modern Indian Language (MIL) in addition to these languages.
- At later stages, study of classical and foreign languages may be introduced.

3.1.2 Home/First language(s) or Mother-tongue education

It is clear that through their innate language faculty and interaction with the family and other people around them, children come to school with full-blown communicative competence in their language, or, in many cases, languages. They enter the school not only with thousands of words but also with a full control of the rules that govern the complex and rich structure of language at the level of sounds, words, sentences and discourse. A child knows not only how to understand and speak correctly but also appropriately in her language(s). She can modulate her behaviour in terms of person, place and topic. She obviously has the cognitive abilities to abstract extremely complex systems of language-from the flux of sounds. Honing these skills by progressively fostering advanced-level communicative and cognitive abilities in the classroom is the goal of first-language(s) education. From Class III

Literature can also be a spur to children's own creativity. After hearing a story, poem or song, children can be encouraged to write something of their own. They can also be encouraged to integrate various forms of creative expression.

onwards, oracy and literacy will be tools for learning and for developing higher-order communicative skills and critical thinking. At the primary stage, child's languages must be accepted as they are, with no attempt to correct them. By Class IV, if rich and interesting exposure is made available, the child will herself acquire the standard variety and the rules of correct orthography, but care must be taken to honour and respect the child's home language(s)/mother tongue(s). It should be accepted that errors are a necessary part of the process of learning, and that children will correct themselves only when they are ready to do so. Instead of focusing attention on errors and 'hard spots', it would be much better to spend time providing children comprehensible, interesting and challenging inputs.

It is indeed hard to exaggerate the importance of teaching home languages at school. Though children come equipped with basic interpersonal communicative skills, they need to acquire at school cognitively advanced levels of language proficiency. Basic language skills are adequate for meeting situations that are contextually rich and cognitively undemanding such as peer-group interaction; advanced-level skills are required in situations that are contextually poor and cognitively demanding such as writing an essay on an abstract issue. It is also now well established that higher-level proficiency skills easily transfer from one language to another. It is thus imperative that we do everything we can to strengthen the sustained learning of Indian languages at school.

Language education is not confined to the language classroom. A science, social science or mathematics class is *ipso facto* a language class. Learning the subject means learning the terminology, understanding the concepts, and being able to discuss and write about them critically. For some topics, students should be encouraged to consult books or talk to people in different languages, or gather material in English from the Internet. Such a policy of languages across the curriculum will foster a genuine multilingualism in the school. At the same time, the language class offers some unique opportunities. Stories, poems, songs and drama link children to their cultural heritage, and also give them an opportunity to understand their own experiences and to develop sensitivity to others. We may also point out that children may effortlessly abstract more grammar from such activities than through explicit and often boring grammar lessons.

While many of the differently abled learners may pick up basic language skills through normal social interactions, they could additionally be provided with especially designed materials that would assist and enhance their growth and development. Studying sign language and Braille could be included as options for learners without disabilities.

3.1.3 Second-language Acquisition

English in India is a global language in a multilingual country. A variety and range of English-teaching situations prevail here owing to the twin factors of teacher proficiency in English and pupils' exposure to English outside school. The level of introduction of English is now a matter of political response to people's aspirations rather than an academic or feasibility issue, and people's choices about the level of its introduction in the curriculum will have to be respected, with the proviso that we do not extend downwards the very system that has failed to deliver.

The goals for a second-language curriculum are twofold: attainment of a basic proficiency, such as is acquired in natural language learning, and the development of language into an instrument for abstract thought and knowledge acquisition through (for example) literacy. This argues for an across-the-curriculum approach that breaks down the barriers between English and other subjects, and English and other Indian languages. At the initial stages, English may be one of the languages for learning activities that create the child's awareness of the world. At later stages, all learning happens through language. Higher-order linguistic skills generalise across languages; reading, (for example) is a transferable skill. Improving it in one language improves it in others, while reading failure in one's own languages adversely affects second-language reading.

Within the eight years of education constitutionally guaranteed to every child, it should be possible to achieve basic English-language proficiency in a span of about four years. A multilingual approach to schooling from the very outset will counter possible ill effects such as loss of one's own languages and the burden of sheer incomprehension.

English does not stand alone. The aim of English teaching is the creation of multilinguals who can enrich all our languages; this has been an abiding national vision. English needs to find its place along with other Indian languages in different states, where children's other languages strengthen English teaching and learning; and in "English-medium" schools, where other Indian languages need to be valorised to reduce the perceived hegemony of English. The relative success of "English-medium" schools shows that language is learnt when it is not being taught as language, through exposure in meaningful context. Thus English must be seen in relation to other subjects; a language across the curriculum is of particular relevance to primary education, and later all teaching is in a sense language teaching. This perspective will bridge the gap between "English as subject" and "English as medium". We should in this way move towards a common school system that does not make a distinction between " teaching a language" and "using a language as a medium of instruction".

Input-rich communicational environments are a prerequisite for language learning, whether first or second. Inputs include textbooks, learner-chosen texts, and class libraries, allowing for a variety of genres: print (for example, Big Books for young learners); parallel books and materials in more than one language; media support (learner magazines/newspaper columns, radio/audio cassettes); and "authentic" materials. The language environment of disadvantaged learners needs to be enriched by developing schools into community learning centres. A variety of successful innovations exists whose generalisability needs exploration and encouragement. Approaches and methods need not be exclusive but may be mutually supportive within a broad cognitive philosophy (incorporating Vygotskian, Chomskyan, and Piagetian principles). Higher-order skills (including literary appreciation and role of language in gendering) can be developed once fundamental competencies are ensured.

Teacher education needs to be ongoing and onsite (through formal or informal support systems), as well as preparatory. Proficiency and professional awareness are equally to be promoted, the latter imparted, wherever necessary, through the teachers' own languages. All teachers who teach English should have basic proficiency in English. All teachers should have

the skills to teach English in ways appropriate to their situation and levels based on some knowledge of how languages are learnt. A variety of materials should be available to provide an input-rich curriculum, which focuses on meaning.

Language evaluation need not be tied to "achievement " with respect to particular syllabi, but must be reoriented to the measurement of language proficiency. Evaluation is to be made an enabling factor for learning rather than an impediment. Ongoing assessment could document a learner's progress through the portfolio mode. National benchmarks for language proficiency need to be evolved preliminary to designing a set of optional English language tests that will balance curricular freedom with standardisation of evaluation that certification requires, and serve to counter the current problem of English (along with Mathematics) being a principal reason for failure at the Class X level. A student may be allowed to "pass without English" if an alternative route for English certification (and therefore instruction) can be provided outside the regular school curriculum.

3.1.4 Learning to Read and Write

Though we strongly advocate an integrated approach to the teaching of different skills of language, the school does need to pay special attention to reading and writing in many cases, particularly in the case of home languages. In the case of second and third, or classical or foreign languages, all the skills, including communicative competence, become important. Children appear to learn much better in holistic situations that make sense to them rather than in a linear and additive way that often has no meaning. Rich and comprehensible input should constitute the site for acquisition of all the different skills of language. In several communicative situations, such as taking notes while listening to somebody on the phone, several skills may need to be used together. We really wish children to read and write with understanding. Language – as a constellation of skills, thought encoders and markers of identity–cuts across school subjects and disciplines. Speech and listening, reading and writing, are all generalised skills, and children's mastery over them becomes the key factor affecting success at school. In many situations, all of these skills need to be used together. This is why it is important to view language education as everybody's concern at school, and not as a responsibility of the language teacher alone. Also, the foundational role of the skills associated with language does not stop with the primary or elementary classes, but extends all the way up to secondary and senior secondary classes as new needs arise in the subject areas. Development of life skills such as critical thinking skills, interpersonal communication skills, negotiation/ refusal skills, decision making/ problem-solving skills, and coping and self-management skills is also very critical for dealing with the demands and challenges of everyday life.

The conventionally trained language teacher associates the training of speech with *correctness* rather than with the expressive and participatory functions of language. This is why talking in class has a negative value in our system, and a great deal of the teacher's energy goes into keeping children quiet, or getting them to pronounce correctly. If teachers see the child's talk as a resource rather than as a nuisance, the vicious cycle of resistance and control would have a chance to be turned into a cycle of expression and response. There is a vast body of knowledge available on how talk can be used as a resource, and pre- and in-service teacher education programmes must introduce teachers to this. Designers of textbooks and teacher manuals could also plan and provide precise guidance to teachers regarding

ways in which the subject matter can be explored further with the help of small group talk among children, and undertaking activities that nurture the abilities to compare and contrast, to wonder and remember, to guess and challenge, to judge and evaluate. In the orbit of listening, similar detailed planning of activities for incorporation in textbooks and teacher manuals would go a long way in resurrecting the significant skill and value area. It covers the ability to pay attention, to value the other person's point of view, to stay in touch with the unfolding utterance, and to make flexible hypotheses about the meaning of what is being said. Listening, thus, forms as complex a web of skills and values as talking does. Locally available resources include folklore and storytelling, community singing and theatre. Storytelling is appropriate not only for pre-school education, but continues to be significant even later. As a narrative discourse, orally told the stories lay the foundations of logical understanding even as they expand the imagination and enhance the capacity to participate vicariously in situations distant from one's life. Fantasy and mystery play an important role in child development. As a sector of language learning, listening also needs to be enriched with the help of music, which includes folk, classical and popular compositions. Folklore and music also deserve a place in the language textbook as discourses capable of being developed with the help of exercises and activities unique to them.

While reading is readily accepted as a focus area for language education, school syllabi are burdened with information-absorbing and memorising tasks, so much so that the pleasure of reading for its own sake is missed out. Opportunities for individualised reading need to be built at all stages in order to promote a culture of reading, and teachers must set the example of being members of such a culture. This requires the

Why don't children learn to read?

- √ *Teachers lack basic pedagogic skills (understanding where the learner is, explaining, asking appropriate questions and, an understanding of the processes of learning to read, which range from bottom-up processes such as syllable recognition and letter-sound matching, to top-down processes of whole-word recognition and meaning making from texts. They also often lack class-management skills. They tend to focus on errors or hard spots rather than on imaginative input and articulation.*
- √ *Pre-service training does not give the teacher adequate preparation in reading pedagogy, and neither does in-service training address the issue.*
- √ *Textbooks are written in an ad-hoc fashion, with no attempt to follow a coherent strategy of reading instruction.*
- √ *Children from disadvantaged backgrounds, especially first-generation learners, do not feel accepted by the teacher, and cannot relate to the textbook.*

A workable approach to beginning reading

- √ *The classroom needs to provide a print-rich environment, displaying signs, charts, work-organising notices, etc. that promote 'iconic' recognition of the written symbols, in addition to teaching letter-sound correspondences.*
- √ *There is a need for imaginative input that is read by a competent reader with appropriate gestures, dramatisation, etc.*
- √ *Writing down experiences narrated by children, and then having them read the written account.*
- √ *Reading of additional material: stories, poems, etc.*
- √ *First-generation school goers must be given opportunities to construct their own texts and contribute self-selected texts to the classroom.*

major means of discouraging reading. The development and supply of a range of supplementary reading material relevant to all school subjects and across the grades require urgent attention. A great deal of such material, though of varying quality, is available in the market, and could be utilised in a methodical manner to expand the scope of classroom teaching of a subject. Teacher training programmes need to familiarise teachers with such material, and to give them yardsticks by which to select and use it effectively.

The importance of writing is well recognised, but the curriculum needs to attend to its innovative treatments. Teachers insist that children write in a correct way. Whether they express their own thoughts and feelings through writing is not considered too important. Just as the prematurely imposed discipline of pronunciation stifles the child's motivation to talk freely, in his or her own dialect, for instance, the demand for writing in mechanically correct ways blocks the urge to use writing to express or to convey one's ideas. Teachers need to be persuaded and trained to place writing in the same domain as artistic expression, and to cease perceiving it as an office skill. During the primary years, writing abilities should be developed holistically in conjunction with the sensibilities associated with talking, listening, and reading. At middle and senior levels of schooling, note making should receive attention as a skill-development training exercise. This will go a long way in discouraging mechanical copying from the blackboard, textbooks and guides. It is also necessary to break the routinisation of tasks like letter and essay writing, so that imagination and originality are allowed to play a more prominent role in education.

Some problems in school Mathematics education

1. *A majority of children have a sense of fear and failure regarding Mathematics. Hence, they give up early on, and drop out of serious mathematical learning.*
2. *The curriculum is disappointing not only to this non-participating majority, but also to the talented minority by offering them no challenges.*
3. *Problems, exercises and methods of evaluation are mechanical and repetitive, with too much emphasis on computation. Areas of Mathematics such as spatial thinking are not developed enough in the curriculum.*
4. *Teachers lack confidence, preparation and support.*

3.2 MATHEMATICS

Developing children's abilities for mathematisation is the main goal of mathematics education. The narrow aim of school mathematics is to develop 'useful' capabilities, particularly those relating to numeracy–numbers, number operations, measurements, decimals and percentages. The higher aim is to develop the child's resources to think and reason mathematically, to pursue assumptions to their logical conclusion and to handle abstraction. It includes a way of doing things, and the ability and the attitude to formulate and solve problems.

This calls for a curriculum that is ambitious, coherent and teaches important principles of mathematics. It should be ambitious in the sense that it seeks to achieve the higher aim mentioned above, rather than only the narrower aim. It should be coherent in the sense that the variety of methods and skills available piecemeal (in arithmetic, algebra, geometry) cohere into an ability to address problems that come from other domains such as science and social studies in high

school. It should be important in the sense that students feel the need to solve such problems, that teachers and students find it worth their time and energy to address these problems. The twin concerns of the Mathematics curriculum are: what can mathematics education do to engage the mind of every student, and how can it strengthen the student's resources?

As mathematics is a compulsory subject at the secondary stage, access to quality mathematics education is the right of every child. In the context of univeralisation of education, the first question to ask is, what mathematics can be offered in eight years of schooling that will stand every child in good stead rather than be a preparation for higher secondary education alone? Most of the skills taught in primary school mathematics are useful. However, a reorientation of the curriculum towards addressing the 'higher aims' mentioned above will make better use of the time that children spend in school in terms of the problem-solving and analytical skills that it builds, and in preparing children to better meet a wide variety of problems in life. Also, the tall shape of mathematics (where mastery of one topic is a prerequisite for the next) can be de-emphasised in favour of a broader-based curriculum with more topics that starts from the basics. This will serve the needs of different learners better.

3.2.1 Vision for School Mathematics

- Children learn to enjoy mathematics rather than fear it.
- Children learn important mathematics: Mathematics is more than formulas and mechanical procedures.
- Children see mathematics as something to talk about, to communicate through, to discuss among themselves, to work together on.
- Children pose and solve meaningful problems.
- Children use abstractions to perceive relation-ships, to see structures, to reason out things, to argue the truth or falsity of statements.
- Children understand the basic structure of Mathematics: Arithmetic, algebra, geometry and trigonometry, the basic content areas of school Mathematics, all offer a methodology for abstraction, structuration and generalisation.
- Teachers engage every child in class with the conviction that everyone can learn mathematics.

Many general tactics of problem solving can be taught progressively during the different stages of school: abstraction, quantification, analogy, case analysis, reduction to simpler situations, even guess-and-verify exercises, are useful in many problem-solving contexts. Moreover, when children learn a variety of approaches (over time), their toolkit becomes richer, and they also learn which approach is the best. Children also need exposure to the use of heuristics, or rules of thumb, rather than only believing that Mathematics is an 'exact science'. The estimation of quantities and approximating solutions is also essential skill. When a farmer estimates

Visualising proof:
Why is 3×5 = 5×3?

Three groups of five *Five groups of three*

the yield of a particular crop, he uses considerable skills in estimation, approximation and optimisation. School Mathematics can play a significant role in developing such useful skills.

Visualisation and representation are skills that Mathematics can help to develop. Modelling situations using quantities, shapes and forms are the best use of mathematics. Mathematical concepts can be represented

in multiple ways, and these representations can serve a variety of purposes in different contexts. All of this adds to the power of Mathematics. For example, a function may be represented in algebraic form or in the form of a graph. The representation p/q can be used to denote a fraction as a part of the whole, but can also denote the quotient of two numbers, p and q. Learning this about fractions is as important, if not more, than learning the arithmetic of fractions.

There is also a need to make connections between Mathematics and other subjects of study. When children learn to draw graphs, they should also be encouraged to think of functional relationships in the sciences, including geology. Our children need to appreciate the fact that Mathematics is an effective instrument in the study of science.

The importance of systematic reasoning in Mathematics cannot be overemphasised, and is intimately tied to notions of aesthetics and elegance so dear to mathematicians. Proof is important, but in addition to deductive proof, children should also learn when pictures and constructions provide proof. Proof is a process that convinces a sceptical adversary; school mathematics should encourage proof as a systematic way of argumentation. The aim should be to develop arguments, evaluate arguments, make and investigate conjectures, and understand that there are various methods of reasoning.

Mathematical communication is precise and employs unambiguous use of language and rigour in formulation, which are important characteristics of mathematical treatment. The use of jargon in Mathematics is deliberate, conscious and stylised. Mathematicians discuss what is appropriate notation since good notation is held in high esteem and believed to aid thought. As children grow older, they should be taught to appreciate the significance of such conventions and their use. For instance, this means that setting up of equations should get as much coverage as solving them.

Problem posing

√ *If you know that 235 + 367 = 602, how much is 234 + 369? How did you find the answer?*

√ *Change any one digit in 5384. Did the number increase or decrease? By how much?*

In discussing many of these skills and processes, we have referred to a multiplicity of approaches and procedures. These are all crucial for liberating school Mathematics from the tyranny of applying them only to those algorithms that are taught.

3.2.2 The Curriculum

At the pre-primary stage, all learning occurs through play rather than through didactic communication. Rather than the rote learning of the number sequence, children need to learn and understand, in the context of small sets, the connection between word games and counting, and between counting and quantity. Making simple comparisons and classifications along one dimension at a time, and identifying shapes and symmetries, are appropriate skills to acquire at this stage. Encouraging children to use language to freely express one's thoughts and emotions, rather than in predetermined ways, is extremely important at this and at later stages.

Having children develop a positive attitude towards, and a liking for, Mathematics at the primary stage is as important, if not more than the cognitive skills and concepts that they acquire. Mathematical games, puzzles and stories help in developing a positive attitude and in making connections between mathematics and everyday thinking. It is important to

note that mathematics is not just arithmetic. Besides numbers and number operations, due importance must be given to shapes, spatial understanding, patterns, measurement and data handling. The curriculum must explicitly incorporate the progression that learners make from the concrete to the abstract while acquiring concepts. Apart from computational skills, stress must be laid on identifying, expressing and explaining patterns, on estimation and approximation in solving problems, on making connections, and on the development of skills of language in communication and reasoning.

At the upper primary stage, students get the first taste of the power of Mathematics through the application of powerful abstract concepts that compress previous learning and experience. This enables them to revisit and consolidate basic concepts and skills learnt at the primary stage, which is essential from the point of view of achieving universal mathematical literacy. Students are introduced to algebraic notation and its use in solving problems and in generalisation, to the systematic study of space and shapes, and for consolidating their knowledge of measurement. Data handling, representation and interpretation form a significant part of the ability of dealing with information in general, which is an essential 'life skill'. The learning at this stage also offers an opportunity to enrich students' spatial reasoning and visualisation skills.

At the secondary stage, students begin to perceive the structure of Mathematics as a discipline. They become familiar with the characteristics of mathematical communication: carefully defined terms and concepts, the use of symbols to represent them, precisely stated propositions, and proofs justifying propositions. These aspects are developed particularly in the area of geometry. Students develop their facility with algebra, which is important not only in the application of mathematics, but also within mathematics in providing justifications and proofs. At this stage, students integrate the many concepts and skills that they have learnt into a problem-solving ability. Mathematical modelling, data analysis and interpretation taught at this stage can consolidate a high level of mathematical literacy. Individual and group exploration of connections and patterns, visualisation and generalisation, and making and proving conjectures are important at this stage, and can be encouraged through the use of appropriate tools that include concrete models as in Mathematics laboratories and computers.

The aim of the Mathematics curriculum at the higher secondary stage is to provide students with an appreciation of the wide variety of the application of Mathematics, and equip them with the basic tools that enable such application. A careful choice between the often conflicting demands of depth versus breadth needs to be made at this stage. The rapid explosion of Mathematics as a discipline, and of its range of application, favours an increase in the breadth of coverage. Such increase must be dictated by mathematical considerations of the importance of topics to be included. Topics that are more naturally the province of other disciplines may be left out of the Mathematics curriculum. The treatment of topics must have an objective, that is, the communication of mathematical insights and concepts, which naturally arouse the interest and curiosity of students.

3.2.3 Computer Science

The tremendous effectiveness of the computer and computing technology in shaping modern society has created the need for an educated public that can utilise such technology most effectively for the betterment of society and humankind. There is, therefore, a

growing realisation of the need to have a place for these domains of knowledge in the school curriculum.

A distinction must be made between the Information Technology (IT) curriculum, which involves the use and application of tools of the information and computer age, and the Computer Science (CS) curriculum, which is concerned with how these tools are designed and deployed. Both of these have their place in school education.

While several countries have implemented CS and/or IT curricula in schools, we need to be aware of the challenges that Indian school students face. The first of these is the paucity of technology resources for computer science. It is absurd to teach computer science (let alone computer usage) without access to computing resources. Providing computer access and connectivity for all children is a tremendous technological and economic challenge. However, given the pervasive impact of computer technologies, we need to address this infrastructure challenge seriously and explore viable and innovative alternatives with regard to hardware, software and connectivity technologies appropriate for rural and urban Indian schools.

We also need to address the issue of the development of a comprehensive and coherent curriculum model in computer science and IT, which can serve as the basis for the beginning of a discussion between educators, administrators, and the general public. Certain core elements are common to several CS and IT curricula, and are applicable to Indian schools as well. These include the concepts of iterative processes and algorithms, general problem-solving strategies arising from computing, possibilities of computer usage, the place occupied by computers in the modern world, and the societal issues that arise thereby.

3.3 SCIENCE

One important human response to the wonder and awe of nature from the earliest times has been to observe the physical and biological environment carefully, look for any meaningful patterns and relations, make and use new tools to interact with nature, and build conceptual models to understand the world. This human endeavour has led to modern science. Broadly speaking, the scientific method involves several interconnected steps: observation, looking for regularities and patterns, making hypotheses, devising qualitative or mathematical models, deducing their consequences, verification or falsification of theories through observations and controlled experiments, and thus arriving at the principles, theories and laws governing the natural world. The laws of science are never viewed as fixed eternal truths. Even the most established and universal laws of science are always regarded as provisional, subject to modification in the light of new observations, experiments and analyses.

Science is a dynamic, expanding body of knowledge, covering ever-new domains of experience. In a progressive forward-looking society, science can play a truly liberating role, helping people escape from the vicious cycle of poverty, ignorance and superstition. The advances in science and technology have transformed traditional fields of work such as agriculture and industry, and led to the emergence of wholly new fields of work. People today are faced with an increasingly fast-changing world where the most important skills are flexibility, innovation and creativity. These different imperatives have to be kept in mind in shaping science education.

Good science education is true to the child, true to life and true to science. This simple observation leads to the following basic criteria of validity of a science curriculum:

1. *Cognitive validity* requires that the content, process, language and pedagogical practices of

Asking questions

"Air is everywhere" is a statement that every schoolchild learns. Students may know that the earth's atmosphere consists of several gases, or that there is no air on the moon. We might be happy that they know some science. But consider this exchange in a Class IV classroom.

Teacher: Is there air in this glass?

Students (in chorus): Yes!

The teacher was not satisfied with the usual general statement, "Air is everywhere." She asked the students to apply the idea in a simple situation, and found, unexpectedly, that they had formed some "alternative conceptions".

Teacher: Now I turn the glass upside down. Is there still air in it?

Some students said "yes", others said "no", still others were undecided.

Student 1: The air came out of the glass!

Student 2: There was no air in the glass.

In Class II, the teacher put an empty glass over a burning candle and the candle went out!

The students had performed an activity whose memory had remained vivid even two years later, but some of them at least had taken away an incorrect conclusion from it.

After some explanation, the teacher questioned the students further. Is there air in this closed cupboard? Is there air in the soil? In water? Inside our body? Inside our bones? Each of these questions brought up new ideas and presented an opportunity to clear some misunderstandings. This lesson was also a message to the class: do not accept statements uncritically. Ask questions. You may not find all the answers but you will learn more.

the curriculum are age appropriate, and within the cognitive reach of the child.

2. *Content validity* requires that the curriculum must convey significant and correct scientific information. Simplification of content, which is

What biology do students know?

"These students don't understand science. They come from a deprived background!" We frequently hear such opinions expressed about children from rural or tribal backgrounds. Yet consider what these children know from everyday experience.

Janabai lives in a small hamlet in the Sahyadri hills. She helps her parents in their seasonal work of rice and tuar farming. She sometimes accompanies her brother in taking the goats to graze in the bush. She has helped in bringing up her younger sister. Nowadays she walks 8 km. every day to attend the nearest secondary school.

Janabai maintains intimate links with her natural environment. She has used different plants as sources of food, medicine, fuelwood, dyes and building materials; she has observed parts of different plants used for household purposes, in religious rituals and in celebrating festivals. She recognises minute differences between trees, and notices seasonal changes based on shape, size, distribution of leaves and flowers, smells and textures. She can identify about a hundred different types of plants around her — many times more than her Biology teacher can — the same teacher who believes Janabai is a poor student.

Can we help Janabai translate her rich understanding into formal concepts of Biology? Can we convince her that school Biology is not about some abstract world coded in long texts and difficult language. Rather it is about the farm she works on, the animals she knows and takes care of, the woods that she walks through every day. Only then will she truly learn science.

necessary for adapting the curriculum to the cognitive level of the learner, must not be so trivialised as to convey something basically flawed and/or meaningless.

3. *Process validity* requires that the curriculum should engage the learner in acquiring the methods and processes that lead to the generation and validation of scientific knowledge and nurture the natural curiosity and creativity of the child in science. Process validity is an important criterion since it helps the student in 'learning to learn' science.
4. *Historical validity* requires that the science curriculum be informed by a historical perspective, enabling the learner to appreciate how the concepts of science evolve over time. It also helps the learner to view science as a social enterprise and to understand how social factors influence the development of science.
5. *Environmental validity* requires that science beplaced in the wider context of the learner's environment, local and global, enabling him/her to appreciate the issues at the interface of science, technology and society, and equipping him/her with the requisite knowledge and skills to enter the world of work.
6. *Ethical validity* requires that the curriculum promote the values of honesty, objectivity, cooperation, and freedom from fear and prejudice, and inculcate in the learner a concern for life and preservation of the environment.

3.3.1 The Curriculum at different Stages

Consistent with the criteria given above, the objectives, content, pedagogy and assessment for different stages of the curriculum are summarised below:

At the primary stage, the child should be engaged in joyfully exploring the world around and harmonising with it. The objectives at this stage are to nurture the curiosity of the child about the world (natural environment, artifacts and people), to have the child engage in exploratory and hands-on activities for acquiring the basic cognitive and psychomotor skills through observation, classification, inference, etc.; to emphasise design and fabrication, estimation and measurement as a prelude to the development of technological and quantitative skills at later stages; and to develop basic language skills: speaking, reading and writing not only for science but also through science. Science and social science should be integrated as 'environmental studies' as at present, with health as an important component. Throughout the primary stage, there should be no formal periodic tests, no awarding of grades or marks, and no detention.

At the upper primary stage, the child should be engaged in learning the principles of science through familiar experiences, working with hands to design simple technological units and modules (e.g. designing and making a working model of a windmill to lift weights) and continuing to learn more about the environment and health, including reproductive and sexual health, through activities and surveys. Scientific concepts are to be arrived at mainly from activities and experiments. Science content at this stage is not to be regarded as a diluted version of secondary school science. Group activities, discussions with peers and teachers, surveys, organisation of data and their display through exhibitions, etc. in schools and the neighbourhood should be important components of pedagogy. There should be continuous as well as periodic assessment (unit tests, term-end tests). The system of 'direct' grades should be adopted. There should be no detention. Every child who attends eight years of school should be eligible to enter Class IX.

At the secondary stage, students should be engaged in learning science as a composite discipline,

in working with hands and tools to design more advanced technological modules than at the upper primary stage, and in activities and analyses on issues concerning the environment and health, including reproductive and sexual health. Systematic experimentation as a tool to discover/verify theoretical principles, and working on locally significant projects involving science and technology, are to be important parts of the curriculum at this stage.

At the higher secondary stage, science should be introduced as separate disciplines, with emphasis on experiments/technology and problem solving. The current two streams, academic and vocational, being pursued as per NPE-1986, may require a fresh look in the present scenario. Students may be given the option of choosing the subjects of their interest freely, though it may not be feasible to offer all the different subjects in every school. The curriculum load should be rationalised to avoid the steep gradient between secondary and higher secondary syllabi. At this stage, the core topics of a discipline, taking into account recent advances in the field, should be identified carefully and treated with appropriate rigour and depth. The tendency to cover a large number of topics of the discipline superficially should be avoided.

3.3.2 Outlook

Looking at the complex scenario of science education in India, three issues stand out clearly. First, science education is still far from achieving the goal of equity enshrined in our Constitution. Second, science education in India, even at its best, develops competence but does not encourage inventiveness and creativity. Third, the overpowering examination system is basic to most, if not all, the fundamental problems of science education in India.

The science curriculum must be used as an instrument for achieving social change in order to reduce the divide based on economic class, gender, caste, religion and region. We must use textbooks as one of the primary instruments for equity, since for a great majority of school-going children, as also for their teachers, it is the only accessible and affordable resource for education. We must encourage alternative textbook writing in the country within the broad guidelines laid down by the National Curriculum Framework. These textbooks should incorporate activities, observation and experimentation, and encourage an active approach to science, connecting it with the world around the child, rather than information-based learning. Additionally, materials such as workbooks, co-curricular and popular science books, and children's encyclopaedia would enhance children's access to information and ideas that need not go into the textbook, loading it further, but would enrich learning that takes place through project work. There is a dearth of such materials with rich visuals in regional languages.

The development of science corners, and providing access to science experimentation kits and laboratories, in rural areas are also important ways of equitably provisioning for science learning. Information and Communication Technology (ICT) is an important tool for bridging social divides. ICT should be used in such a way that it becomes an opportunity equaliser by providing information, communication and computing resources in remote areas. ICT if used for connecting children and teachers with scientists working in universities and research institutions would also help in demystifying scientists and their work.

For any qualitative change from the present situation, science education in India must undergo a paradigm shift. Rote learning should be discouraged. Inquiry skills should be supported and strengthened

by language, design and quantitative skills. Schools should place much greater emphasis on co-curricular and extra-curricular activities aimed at stimulating investigative ability, inventiveness and creativity, even if these are not part of the external examination system. There should be a massive expansion of such activities along the lines of the Children's Science Congress, being held successfully at present. A large-scale science and technology fair at the national level (with feeder fairs at cluster/district/state levels) may be organised to encourage schools and teachers to participate in this movement. Such a movement should gradually spread to every corner of India and even across South Asia, unleashing a wave of creativity and scientific temper among young students and their teachers.

Examination reform should be initiated as a national mission, supported by adequate funding and high-quality human resources. The mission should bring teachers, educationists and scientists on a common platform; launch new ways of testing students that would reduce the high level of examination-related stress; curb the maddening multiplicity of entrance examinations; and undertake research on ways of testing multiple abilities other than formal scholastic competence.

These reforms, however, fundamentally need the overarching reform of teacher empowerment. No reform, however well motivated and well planned, can succeed unless a majority of teachers feel empowered to put it in practice. With active teacher participation, the reforms suggested above could have a cascading effect on all stages of science teaching in our schools.

3.4 Social Sciences

The social sciences encompass diverse concerns of society, and include a wide range of content drawn from the disciplines of History, geography, political science, economics, sociology and anthropology. Social Science perspectives and knowledge are indispensable to building the knowledge base for a just and peaceful society. The content should aim at raising students' awareness through critically exploring and questioning of familiar social reality.The possibilities of including new dimensions and concerns, especially in view of students' own life experiences, are considerable. Selecting and organising material into a meaningful curriculum, one that will enable students to develop a critical understanding of society, is therefore a challenging task.

Because the social sciences tend to be considered non-utility subjects and are given less importance than the natural sciences, it is necessary to emphasise that they provide the social, cultural, and analytical skills required to adjust to an increasingly interdependent world, and to deal with political and economic realities.

It is believed that the social sciences merely transmit information and are text centred. Therefore, the content needs to focus on a conceptual understanding rather lining up facts to be memorised for examinations. Reiterating the recommendations of '*Learning Without Burden* (1993), emphasis has to be laid on developing concepts and the ability to analyse socio-political realities rather than on the mere retention of information without comprehension.

There is also a peception that not many career options are open to students specialising in the social sciences. On the contrary, the social sciences are becoming increasingly relevant for jobs in the rapidly exapanding service sector, and also in developing skills of analysis and creativity.

In a pluralistic society like ours, it is important that all regions and social groups be able to relate to the textbooks. Relevant local content should be part of the teaching-learning process, ideally transacted through activities drawing on local resources.

It is also necessary to recognise that the social sciences lend themselves to scientific inquiry just as much as the natural and physical sciences do, as well as to indicate ways in which the methods employed by the social sciences are *distinct* (but in no way inferior to those of the natural and physical sciences).

The social sciences carry a normative responsibility of creating a strong sense of human values, namely, freedom, trust, mutual respect, and respect for diversity. Social science teaching should aim at generating in students a critical moral and mental energy, making them alert to the social forces that threaten these values.

The disciplines that make up the social sciences, namely, History, geography, political science, and economics, have distinct methodologies that often justify the retaining of boundaries. At the same time, cross disciplinary approaches that are possible should also be indicated. For an enabling curriculum, certain themes that facilitate interdisciplinary thinking need to be incorporated.

3.4.1 The Proposed Epistemological Frame

Based on the above considerations of popular perceptions, and the issues to be addressed in the study of the social sciences, the National Focus Group on the Teaching of the Social Sciences proposes that the following points be treated as basic for the revised syllabi. (Textbooks themselves should be seen as opening up avenues for further enquiry, and students should be encouraged to go beyond the textbook to further reading and observaion.)

As pointed out by the Kothari Commission, the social science curriculum hitherto emphasised developmental issues. These are important but not sufficient for understanding the normative dimension, like issues of equality, justice, and dignity in society and polity. The role of individuals in contributing to this 'development' has often been overemphasised. An epistemological shift is suggested so as to accommodate the multiple ways of imagining the Indian nation. The national perspective needs to be balanced with reference to the local. At the same time, Indian History should not be taught in isolation, and there should be reference to developments in other parts of the world.

It is suggested that instead of Civics, the term Political Science be used. Civics appeard in the Indian school curriculum in the colonial period against the background of increasing 'disloyalty' among Indians towards the Raj. Emphasis on obedience and loyalty were the key features of Civics. Political Science treats civil society as the sphere that produces sensitive, interrogative, deliberative, and transformative citizens.

Gender concerns need to be addressed in terms of making the perspectives of women integral to the discussion of any historical event and contemporary concerns. This requires an epistemic shift from the patriarchal preconceptions that inform much of the social studies at present.

The concerns related to the health of children, and also those related to social aspects of changes and developments occurring in them during adolescence like changing relationships with parents, peer group, the opposite sex and the adult world in general, need to be addressed appropriately. The responses to the health needs of children and adolescents/youth through policies and programmes at different levels are closely related elements of these concerns.

The concept of human rights has a universal frame of reference. It is imperative that children are introduced to universal values in a manner appropriate for their age. Reference to day-to-day issues, e.g. the problem of getting water, can be discussed so that young students become aware of issues related to human dignity and rights.

3.4.2 Planning the Curriculum

For the primary grades, the natural and the social environment will be explained as integral parts of languages and mathematics. Children should be engaged in activities to understand the environment through illustrations from the physical, biological, social, and cultural spheres. The language used should be gender sensitive. Teaching methods should be in a participative and discussion-oriented mode.

For Classes III to V, the subject Environment Studies (EVS) will be introduced. In the study of the natural environment, emphasis will be on its preservation and the urgency of saving it from degradation. Children will also begin to be sensitised to social issues like poverty, child labour, illiteracy, caste and class inequalities in rural and urban areas. The content should reflect the day-to-day experiences of children and their life worlds.

WATER AND THE ENVIRONMENT	
Where does water come from? How are seas, oceans, rivers formed?	NATURAL SOURCES OF WATER Rivers, lakes, seas, underground water
What are our local water resources?	WATER RESOURCE MAPPING Local/regional/national
Why do wells dry up? How do handpumps work?	RELATIONSHIP BETWEEN NATURAL AND MAN-MADE SOURCES OF WATER
Are big dams more beneficial than small dams?	Understanding the water table Handpump System of irrigation Environmental impact of big dams
How do people in desert areas procure water? What causes droughts?	WATER IN DIFFERENT ECO-SYSTEMS Water sources in desert areas Water sources in mountainous regions Droughts and floods
SOCIAL ASPECTS OF WATER	
Who controls the village well?	CASTE AND CLASS Purity and pollution control over water resources
Who fetches water?	GENDER DIVISION OF LABOUR AND AVAILABILITY OF WATER
Do we have enough water?	Local and regional conflicts over drinking and irrigation water Water as a market force
Why is clean water essential?	HEALTH Body's need for water Right to potable clean water Water-borne diseases

At the upper primary stage, Social Studies will draw its content from History, geography, political science and economics. History will take into account developments in different parts of India, with sections on events or developments in other parts of the world. Geography can help develop a balanced perspective related to issues concerning the environment, resources and development at different levels, from local to global. In Political Science, students will be introduced to the formation and functioning of governments at local, state, and central levels and the democratic processes of participation. The economics component will enable students to observe economic institutions like the family, the market and the state. There will also be a section that will indicate a multidisciplinary approach to these themes.

At the secondary stage, the Social Sciences comprise History, geography, sociology, political science and economics. The focus will be on Contemporary India, and the learner will be initiated into a deeper understanding of the social and economic challenges facing the nation. In keeping with the epistemic shift proposed, these will be discussed from multiple perspectives, including those of the SC and ST and disenfranchised populations. Efforts should be made to relate the content as much as possible to the children's everyday lives. In History, India's freedom movement and other aspects of its modern History can be studied, as well as significant developments in other parts of the world. History should be taught with the intent of enabling students better understand their own world and their own identities came into being as shaped by a rich and varied past. History should now help them discover processes of change and continuity in their world, and to compare ways in which power and control were and are exercised. Geography should be taught keeping in mind the need to inculcate in the child a critical appreciation for conservation and environmental concerns along with developmental issues. In Political Science, the focus should be on discussing the philosophical foundations that underlie the value framework of the Indian Constitution, i.e. in-depth discussion of equality, liberty, justice, fraternity, secularism, dignity, plurality, and freedom from exploitation. As the discipline of Economics is being introduced to the child at this level, it is important that the topics should be discussed from the perspective of the people.

The higher secondary stage is important as it offers a choice of subjects to students. For some students, this stage may be the end of their formal education, leading to the world of work and employment; for others, the foundation for higher education. They may choose either specialised academic courses or job-oriented vocational courses. The foundation at this stage should equip them with basic knowledge and the necessary skills to make a meaningful contribution in the field they choose. A range of courses from the social sciences and commerce may be offered, and students may exercise their choice. Subjects need not be grouped into separate 'streams', and students should have the freedom to opt for subjects or courses according to their need, interest and aptitude. The social sciences will include disciplines like political science, geography, History, economics, sociology and psychology. Commerce may include business studies and accountancy.

3.4.3 Approaches to Pedagogy and Resources

Social science teaching needs to be revitalised for helping the learner acquire knowledge and skills in an interactive environment. The teaching of the social sciences must adopt methods that promote creativity, aesthetics, and critical perspectives, and enable children to draw

Theatre in Education

Theatre is one of the most powerful, yet least utilised art forms in education. In the exploration of self in relation to others, the development of understanding of the self, and of critical empathy, not only for humans but also towards the natural, physical and social worlds, theatre is a medium par excellence.

Dramatising texts is only one small part of theatre. Much more significant experiences are possible through role play, theatre exercises, body and voice control and movement, and group and spontaneous enactments. Such experiences are important not only for teachers in their own development, but also for teachers to provide to children.

relationships between past and present, to understand changes taking place in society. Problem solving, dramatisation and role play are some hitherto underexplored strategies that could be employed. Teaching should utilise greater resources of audio-visual materials, including photographs, charts and maps, and replicas of archaeological and material cultures.

In order to make the process of learning participative, there is a need to shift from mere imparting of information to debate and discussion. This approach to learning will keep both the learner and the teacher alive to social realities.

Concepts should be clarified to students through the lived experiences of individuals and communities. It has often been observed that cultural, social and class differences generate their own biases, prejudices and attitudes in classroom contexts. The approach to teaching therefore needs to be open-ended. Teachers should discuss different dimensions of social reality in the class, and work towards creating increasing self-awareness amongst themselves and the learners.

3.5 Art Education

For decades now, the importance of the arts in the education system has been repeatedly debated, discussed and recommended, but without much progress in this direction. The need to integrate art education in the formal schooling of our students now requires urgent attention if we are to retain our unique cultural identity in all its diversity and richness. Far from encouraging the pursuit of the arts, our education system has steadily discouraged young students and creative minds from taking to the arts or, at best, permits them to consider the arts to be 'useful hobbies' and 'leisure activities'. The arts are reduced to tools for enhancing the prestige of the school on occasions like Independence Day, Founder's Day, Annual Day, or during an inspection of the school's progress and working. Before or after that, the arts are abandoned for the better part of a child's school life, and the student is headed towards subjects that are perceived as being more worthy of attention. General awareness of the arts is also ebbing steadily among not just students, but also their guardians, teachers and even among policy makers and educationists.

> On a winter morning, the teacher asked the children to draw a 'morning scene'. One child completed the drawing and then darkened the background, almost hiding the sun. "I asked for a morning scene! The sun should be bright!" the teacher exclaimed. She didn't notice the child's eyes darting to the window; it was still dark today, and the sun was behind heavy wintry grey clouds.

Schools and school authorities encourage the arts of a superficial and popular nature and take pride in

putting up events that showcase song and dance performances and plays that may entertain, but have little aesthetic quality. We can no longer afford to ignore the importance of the arts and must concentrate all possible energies and resources towards nurturing artistic capabilities and creating cultural and artistic awareness amongst the students of the vast and varied cultural inheritance we have. The arts in India are living examples of the country's secular fabric and cultural diversity. They include a variety of folk and classical forms of music and dance, theatre, puppetry, clay work, visual arts, and crafts from every region of India. Learning any of these arts would enrich the lives of our young citizens, not only in their school years but also throughout their lives.

The arts, visual and performing, need to become an important component of learning in the curriculum. Children must develop skills and abilities in these areas, and not treat these as a mere entertaining fringe. Through the arts curriculum students must be introduced to the rich and varied artistic traditions of the country. Arts education must become both a tool and a subject taught in every school as a compulsory subject (up to Class X), and facilities for the same may be provided in every school. All the four main streams covered by the term the arts, i.e. music, dance, visual arts and theatre, should be included. Awareness also needs to be built among parents and guardians, school authorities and administrators regarding the importance of the arts. Emphasis should be given to learning rather than teaching, and the approach should be participatory, interactive, and experiential rather than instructive.

Throughout the years of school, during all stages, the mediums and forms of art allow children to develop both a playful as well as a disciplined exploration of themselves and diverse materials, and allows them to experiment with many forms of expression. Music,

Heritage Craft Traditions

Craft is a productive process, a wonderful indigenous technology that is far from outmoded. The raw materials are all indigenously available, and environmentally friendly. There is a rich resource of living craft skills, techniques, designs and products that would and could form a rich core resource for the curricular areas of both art and work. Working with hands, with materials and with techniques helps in understanding processes, becoming resourceful, taking initiative, and in problem solving. Such experiences are of irreplaceable value for all children. This area is also well suited as a meaningful site for inclusive education.

Craft must be taught both as a creative and aesthetic activity and as work. It could be integrated into the study of History, social and environmental studies, geography and economics. Developing a perspective on gender, environment and community should also be an integral part of 'critical' craft learning.

- *Crafts could enter into the curriculum as a part of 'art', with an emphasis on creative and aesthetic aspects.*
- *Crafts persons themselves should be teachers and trainers for craft, and ways of enabling them to serve schools on a part-time basis need to be evolved.*
- *Crafts should be taught as a lively, experiential exercise.*
- *Crafts should be taught as projects, and not as classroom exercises.*
- *Different curricula should be planned for different crafts; resources such as design books, samplers, source books, tool guides, and crafts maps are needed.*
- *Craft labs equipped with adequate materials and tools need to be developed.*
- *Craft melas could be organised to expose children to crafts persons and craft traditions, and also for children to showcase their own creative endeavours.*

dance and theatre all contribute to the development of the self, both cognitive and social. The importance of such experiences during the pre-primary and primary school years cannot be overemphasised.

Language, exploration of nature, and an understanding of the self and others can all be experientially learnt and understood by children through various art forms. By their very nature, the art forms allow all children to participate.

Resources for the integration of the arts and heritage crafts should be available in every school. Thus, it is important that the curriculum provide adequate time for a range of art activities. Block periods of about one hour to one and half hours are necessary, especially where theatre, dance, and clay work are involved. The emphasis should not be on attaining some adult standards or notions of 'perfect art', but on supporting the child's own expression and style through exposure to material, skills and technique, but without overemphasising them. Over the years, teachers would help children to move towards formulating and executing their own art projects independently with dedication and persistence, while cultivating a sense of aesthetic quality and excellence.

In the secondary and higher secondary school stages, the art curriculum may allow children to specialise in some areas of their interest. Along with learning the skills and practising them, children could also at this stage learn about the theory of art and aesthetic experience, which could deepen their appreciation and also help them understand the significance of this area of knowledge. Discussions about popular cultural art forms, different kinds of art traditions (cultural differences) and creativity would also provide them with a perspective on the variety of forms and the development of 'taste'. It is important, therefore, that the curriculum not be biased and judgemental about high or low forms of culture, nor treat classical and folk art forms differently. It would also prepare those who wish to choose an art form for specialised study during the +2 stage, or even consider pursuing a career in the arts.

More resource material on arts education should be made available for arts education teachers. Teacher education and orientation must include a significant component that will enable teachers to include arts education efficiently and creatively. In addition, more Bal Bhavans, which have played an important role in the urbanscape, should be established at district headquarters, and eventually at all block centres as well. These would facilitate the additional teaching of arts and crafts activities, and provide opportunities for children to learn these at first hand.

3.6 Health and Physical Education

It is widely acknowledged that health is influenced by biological, social, economic, cultural and political forces. Access to basic needs like food, safe drinking water supply, housing, sanitation and health services influences the health status of a population, and these are reflected through mortality and nutritional indicators. Health is a critical input for the overall development of the child, and it influences enrolment, retention and school completion rates significantly. This curriculum area adopts a holistic definition of health within which physical education and yoga contribute to the physical, social, emotional and mental development of a child.

Undernourishment and communicable diseases are the major health problems faced by the majority of children in India, from the pre-primary to the higher secondary school stages. Therefore, the need to address this aspect at all levels of schooling, with special attention to vulnerable social groups and girl children. It is proposed that the midday meal programme and medical

check-ups be made a part of the curriculum and education about health be provided that address the age-specific concerns at different stages of development. The idea of a comprehensive school health programme, conceived in the 1940s, included six major components, viz., medical care, hygienic school environment, and school lunch, health and physical education. These components are important for the overall development of the child, and hence need to be included in the curriculum. The more recent addition to the curriculum is yoga. The entire group must be taken together as a comprehensive health and physical education curriculum, replacing the fragmentary approach current in schools today. As a core part of the curriculum, time allocated for games and for yoga must not be reduced or taken away under any circumstances.

There is growing realisation that the health needs of adolescents, particularly their reproductive and sexual health needs, require to be addressed. Since these needs predominantly relate to sex and sexuality, which is culturally a very sensitive area, they are deprived of opportunities to get the appropriate information. As such, their understanding of reproductive and sexual health and their behaviour in this regard are guided predominantly by myths and misconceptions, making them vulnerable to risky situations, such as drug/substance abuse and HIV/AIDS transmission. Age- appropriate context-specific interventions focused on adolescent reproductive and sexual health concerns, including HIV/AIDS and drug/substance abuse, therefore, are needed to provide children opportunities to construct knowledge and acquire life skills, so that they cope with concerns related to the process of growing up.

3.6.1 Strategies

Given the multidimensional nature of health, there are many opportunities for cross-curricular learning and integration. Activities such as the National Service Scheme, Bharat Scouts and Guides, and the National Cadet Corps are some such areas. The sciences provide opportunities for learning about physiology, health and disease, and the interdependencies between various living organisms and the physical habitat. The social sciences could provide insights into community health as well as an understanding of the spread, control and cure of infectious diseases from a global socio-economic perspective. This subject lends itself to applied learning, and innovative approaches can be adopted for transacting the curriculum.

The importance of this subject to overall development needs to be reinforced at the policy level, with participation by administrators, other subject teachers in schools, the Health Department, parents and children. Recognising this subject as a core subject Health and Physical Education must continue to be a compulsory subject from the primary, to the secondary stages, and as an optional subject at the higher secondary stage. However, it needs to be given equal status with other subjects, a status that is not being given at present. In order to transact the curriculum effectively, it is essential to ensure that the minimum essential physical space and equipment are available in every school, and that doctors and medical personnel visit school regularly. Teacher preparation for this area needs well-planned and concerted efforts. This subject area, consisting of health education, physical education and yoga, must be suitably integrated into the elementary and secondary pre-service teacher education courses. The potential of the existing physical education training institutes should be reviewed and utilised adequately. Similarly, their appropriate syllabi and teacher training for transaction of yoga in schools need to be reviewed and reformulated. It is also essential to ensure that these concerns are integrated into the activities of the National

Service Scheme, the Scouts and Guides, and the National Cadet Corps.

The 'needs-based approach' could guide the dimensions of the physical, psychosocial and mental aspects that need to be included at different levels of schooling. A basic understanding of the concerns is necessary, but the more important dimension is that of experience and development of health, skills and physical well being through practical engagement with play, exercise, sports, and practices of personal and community hygiene. Collective and individual responsibilities for health and community living need to be emphasised. Several national health programmes like Reproductive and Child Health, HIV/AIDS, Tuberculosis and Mental Health have been targeting children as a focus group with prevention in view. These demands on children need to be integrated into existing curricular activities rather than adding these on.

Yoga may be introduced from the primary level onwards in informal ways, but formal introduction of yogic exercises should begin only from Class VI onwards. All interventions, including even health and hygiene education, must rely on the practical and experiential dimensions of children's lives. There may be more emphasis on the inclusion of sports and games from the local area.

It should be possible to organise the utilisation of school space, at the block level at least, for special sports programmes both before school hours and after school hours to enable children with special talents for sports to come here for special training and during vacation periods. It should also be possible to develop these sports facilities so that many more children can avail of these for leisure-time sports activities and engage with team games such as basketball, throwball, volleyball, and local forms of sports.

3.7 Work and Education

Work, understood simply, is an activity directed toward making or doing something. It also means making one's work or capabilities, or both, available for someone else's purposes for monetary or other forms of return. A number of these activities are related to producing food, articles of daily use, looking after the physical and mental well-being of people, and other activities related to the administration and organisation of society. In any society, in addition to these, two basic dimensions (producing goods and establishing smooth functioning), various other activities also contribute to human well-being, and in that sense are considered forms of work.

Understood in this sense, work implies a commitment to other members of the society and/or community as one is contributing one's work and capabilities for fulfilling their needs. Second, it implies that one's contribution made through work will be submitted to public standards of performance and hence will be valued and judged by others. Third, work implies contributing to the functioning of social life as it either produces something that makes life possible or helps in the functioning of society in general. Finally, work enriches human life as it opens up new dimensions of appreciation and enjoyment.

However, we must not forget that children are often socialised into discriminatory practices and values and that adults socialise children within the dominant socio-cultural paradigm. It is important to recognise that both adults and children are socialised in the same way. We also have to remember that work as forced labour is perhaps the most demeaning of all coercions. There have to be adequate measures in place to ensure that introduction of work as an integral part of the curriculum should never

lead to a situation where work is thrust on unwilling children, or that the 'work' itself is a hindrance to the child's education and normal growth and development. Routine and repetitive activity carried on for the sake of production or work that is associated with the division of labour based on caste and gender should be strictly avoided. Also, a teacher making children work without him/herself participating in the work is unlikely to achieve the objectives of integrating work with the curriculum. The inclusion of work within the school must also never be used as the justification for the exploitation of children.

Work is also an arena for learning for children, whether in the home, the school, the society or the workplace. Children begin to absorb the concept of work as early as the age of two years. Children imitate their elders and like pretending to do work. For example, it is not unusual to see very young children pretending to 'sweep' the floor, or 'hold meetings', or 'build houses', or 'cook'. Work as an educational tool is used by many pedagogies. For example, the Montessori system integrates work concepts and skills from the very beginning. Cutting vegetables, cleaning the classroom, gardening and washing clothes are all a part of the learning cycle. Beneficial work that is in keeping with the child's age and ability, and which contributes to the child's normal growth and development, when introduced into children's lives can serve to enable children to learn values, basic scientific concepts, skills and creative expression. Children gain an identity through work, and feel useful and productive as work adds meaning and brings with it membership to society and enables children to construct knowledge.

Through work one learns to find one's place in society. It is an educational activity with an inherent potential for inclusion. Therefore, an experience of involvement in productive work in an educational setting should make one appreciate the worth of social life and what is valued and appreciated in society. Since work defines some achievable targets and creates a web of interdependence, it entails making efforts in a disciplined manner, thus creating possibilities for greater self-control, focusing mental energies and keeping emotions under check. The value of work, particularly skills that involve good finish, are undervalued as a means of achieving excellence and learning self-discipline. The discipline exercised by the material (say, clay or wood) is more effective and qualitatively different from the discipline exercised by one human being over another. Work involves interaction with materials or other people (mostly both), thus creating a deeper comprehension and increased practical knowledge of natural substances and social relationships. All this is in addition to the usual physical skills involved in learning a trade that may be turned into a means of earning a livelihood. The aspects of work mentioned here draw attention to the meaning-making and knowledge-construction dimension of work. This is the pedagogic function that work can play in the curriculum.

Benefits of this nature can be drawn from work only if it becomes an integral part of the school curriculum. Pursued in an academic setting, work carries the remarkable potential of generating new forms of creativity and understanding while opening up the possibility of transforming the nature of work itself. This has become even more essential as in a majority of families in India contributing to household work and family trade is a way of living, but this pattern is changing due to the pressure of school on children's time and the rampant competition in memorisation of information. Academic activity tends to be imprisoned within disciplinary boundaries. When

academic learning and work are simultaneously collocated, there is a chance of greater creativity in academic pursuits as also in the methods and tools of doing work. A synergetic enhancement can take over. That is how efficient hand pumps were designed. High-flying polythene balloons used to burst while going through the extremely cold stratosphere untill a scientifically minded worker suggested that putting a little carbon powder in the fabric would help to keep it warm by absorbing sunlight. Indeed, all great inventors were tinkerers who knew a little science. Edison, Ford and Faraday belonged to this category, so also those who invented the first pair of spectacles or the telescope. There is little doubt that much of the traditional knowledge of our potters, craftsmen, weavers, farmers and medical men has come through such pursuits – where these individuals were simultaneously engaged in physical work and academic thinking. We need to infuse such a culture of innovation, curiosity and practical experience in our education system.

However, schools at present are not geared for work as a part of the curriculum in terms of infrastructure or learning material. Work is necessarily an interdisciplinary activity. Therefore, integrating work into the school curriculum would require a substantial amount of pedagogical understanding of how it would be integrated with learning and the mechanisms for assessment and evaluation.

Institutionalising work in the school curriculum will require creative and bold thinking that breaks out of its stereotyped location in periods of Socially Useful and Productive Work (SUPW), something about which all children and teachers are justifiably sceptical. We need to examine how the rich work knowledge base and skills of marginalised children can be turned into a source of their own dignity as well as a source of learning for other children. This is especially important in the context of the growing alienation of the middle-upper-class children from their cultural roots and the central role played by the education system in aggravating and accelerating this process. There is immense potential for utilising the knowledge base of the vast productive sections of society as a powerful means for transforming the education system. Work seen as a form of 'valid' knowledge allows one to re-examine the invisibility of the contributions of women and non-dominant groups to what is regarded as valuable in society. Productive work would need to find a place at the centre of the curriculum in order to act as a powerful corrective to the 'bookish', information-oriented and generally unchallenging character of school education and, in turn, help relate the latter to the life needs of the child. Pedagogical experience in using work would become an effective and critical developmental tool at different stages of childhood and adolescence. Thus, 'work-centred education' is different from vocational education.

The school curriculum from the pre-primary to the senior secondary stages should be reconstructed for realising the pedagogic potential of work as a pedagogic medium in knowledge acquisition, developing values and multiple-skill formation. As the child matures, there is a need for the curriculum to recognise the child's need to be prepared for the world of work, and a work-centred pedagogy can be pursued with increasing complexity while always being enriched with the required flexibility and contextuality. A set of work-related generic competencies (basic, interpersonal and systemic) could be pursued at all stages of education. This includes critical thinking, transfer of learning, creativity, communication skills, aesthetics, work motivation, work ethic of collaborative functioning, and entrepreneurship-cum-social

Activities for Peace Awareness

Age 5 + Handle with Care: Let children stand in a row. Give them a paper leaf of a teak tree or canna or banana plant. Let them pass the leaf over their heads in any way they want until it reaches the back of the row. A child then brings the leaf to the front and the cycle starts again. Children are then asked to look at the damage caused to the leaf as it has been handled. This activity could lead to a discussion about leaves and the different trees from which they come from. Damage to a single leaf is representative of damaging nature. The leaf stands for the whole of creation.

Age 7+ Sharing Feelings: Let children sit in a circle and ask each other, "Which was the happiest day in your life? Why was it so happy?" Let each child answer the question. Let some of the children role play one or more of the experiences. As, children become more familiar with the idea of sharing their feelings, ask more difficult questions such as "What makes you really afraid? Why do you feel that way? How do you feel when you watch someone fighting? Why do you feel that way? What makes you really sad? Why?"

Age 10 + Overcome Injustice with Justice: Explain that there are many reasons for injustice in this world, that justice is a basic means for creating peace in the world. Give two or three examples of injustice. Ask the children to give more examples. Then ask the questions: "What was the cause of the injustice? How would you feel in the same situation?" Have some children share their answers with the rest of the class.

Age 12 + Be a Peace Lawyer: Tell the children that they are peace lawyers drawing up peace laws for a country. List five of the most important laws that they would each suggest? Which of the laws suggested by others are you prepared to add to your list? Which laws are you not prepared to accept? Why not?

accountability. For this evaluation, parameters would also need to be redesigned. Without an effective and universal programme of work-centred education, it is unlikely that UEE (and later Universal Secondary Education too) would ever succeed.

3.8 EDUCATION FOR PEACE

We live in an age of unprecedented levels of violence, with constant threats posed by intolerance, fanaticism, dispute and discordance. Ethical action, peace and welfare are facing new challenges. War and violence occur due to unresolved conflicts, though conflicts may not always lead to violence and war. Violence is one of the many possible responses to conflict. Non-violent conflict-resolution skills could be nurtured and applied constructively to disputes between the individuals, groups and nations. The space for peace education within the framework of National School Curriculum document is compellingly clear in the light of the escalating trends of, and taste for, violence globally, nationally and locally. Education is a significant dimension of the long-term process of building up peace – tolerance, justice, intercultural understanding and civic responsibility. However, education as practised in schools often promotes forms of violence, both real and symbolic. Under these circumstances, the need to reorient education and therefore the school curriculum takes priority. As a value, it cuts across all other curricular areas, and coincides with and complements the values emphasised therein. It is, therefore, a concern cutting across the curriculum and is the concern of all teachers.

Education for peace seeks to nurture ethical development, inclucating the values, attitudes and skills required for living in harmony with oneself and with others, including nature. It embodies the joy of living and personality development with the qualities of love,

hope and courage. It encompasses respect for human rights, justice, tolerance, cooperation, social responsibility, and respect for cultural diversity, in addition to a firm commitment to democracy and non-violent conflict resolution. Social justice is an important aspect of peace education. The concern for equality and social justice, which refers to practising non-exploitation towards the have-nots, the poor and the underprivileged and creating a non-violent social system, is the hallmark of education for peace. Similarly, human rights are central to the concept of peace. Peace cannot prevail if the rights of individuals are violated. Basic to human rights are the values of non-discrimination and equality, which contribute to building a culture of peace in society. These issues are inter related. Peace education is thus a host of overlapping values.

Suggestions for Peace Activities

- √ *Set up special clubs and reading rooms in schools that concentrate on peace news and events that violate the norms of social justice and equality.*
- √ *Compile a list of films—documentaries and feature films—that promote the values of justice and peace. Screen them from time to time in schools.*
- √ *Co-opt the media as a stakeholder in education for peace. Invite influential journalists and editors to address children. Ask for space in news papers and journals for children's views to be published at least once a month.*
- √ *Celebrate the cultural and religious diversity of India in schools.*
- √ *Organise programmes to promote an attitude of respect and responsibility towards women.*

Peace education must be a concern that permeates the entire school life – curriculum, co-curriculum, classroom environment, school management, teacher-pupil relationship, teaching-learning processes, and the entire range of school activities. Hence, it is important to examine the curriculum and examination system from the point of view of how they may contribute to children's sense of inadequacy, frustration, impatience and insecurity. Also, the need to consciously counter the negative influence of the increasing violence around them, and its representation in the media, on the minds of children, and in its place promote a reflective engagement with more meaningful aspects of living an ethical and peaceful life. Education in the true sense should empower individuals to clarify their values; to enable them to take conscious and deliberate decisions, taking into consideration the consequences of their actions; to choose the way of peace rather than violence; to enable them to be makers of peace rather than only consumers of peace.

3.8.1 Strategies

Ethical development does not mean the imposition of do's and don'ts. Rather it calls for devising means and ways of helping children learn to make choices and decide what is right, what is kind, and what is best for the common good, keeping in view the broader implications for personal and social values.

Children can understand almost everything they hear and see, but are often not able to reconcile contradictions between what is said and what is done. Even a minor disagreement at home can affect children very deeply. A state of permanent disaffection amongst the elders in the house or a disintegrating relationship between parents creates the kind of incalculable fear and depression that is often manifested as aggression a few years later in early youth. There is a need to bring

parents and teachers together for more than only academic purposes. The responsibility of development of personal ethics does not rest solely with either parents or with the school.

Ethical development follows different patterns characterising different age groups. During the primary years, children are still exploring their immediate environment and developing a consciousness of their own self. Their behaviour revolves around avoiding punishment and seeking rewards. They form notions of good and bad, right and wrong depending upon what is approved or disapproved by their elders. At this stage, what they see in the behaviour and action of adults prompts them to construct their own understanding of ethical behaviour.

As children grow older, their reasoning capabilities develop. However, they are still not mature enough to question assumptions and norms. Inspired by the need to impress others and validate their self-image as strong and capable individuals, they tend to violate rules. At this stage, facilitating reflection on the basis of rules and norms, restrictions, constraints, duties and obligations, etc., through discussion and dialogue, produces insights into the linkage between the collective good, the value of restraint, sacrifice, compassion, etc., which constitute the moral ways of being.

Still later, as abstract thinking is fully developed, individuals can make well -reasoned judgements about what constitutes ethical behaviour. This may lead to the acceptance and internalisation of ethical principles, which then can be sustained in the long run. Even in the absence of an external authority, ethically mature individuals behave in just and appropriate ways, and understand the basis of rules and, norms, and appreciate how these contribute to overall peace and order in society.

Our earliest and best teachers found stories and anecdotes the best way to get across an important spiritual teaching or social message. Along with this is the universal fact that every child, no matter how dull or uninspired his home life, has something to say, some insight to contribute to a class discussion. The teacher needs to draw out the children, gain their confidence, and avoid using threatening language or hostile body language.

Work done by other living beings

Ask children to choose an animal or bird they know well and then list the 'work' they do, specifying if it is the male, female or young of the species. Discuss the reason for such distribution of labour and the rationale behind this. Ask them to write a poem or essay on what they have learnt and put these up as posters in the classroom.

Teaching values has often meant exhortations about desirable behaviour. It has also meant the suppression and denial of "improper" and "unacceptable" feelings and desires. This often leads children to hide their own real feelings, desires, thoughts and convictions and simply pay lip service to moral values and ideals, without making any commitment. Hence the need to move away from mere talk, to a meaningful discussion of experiences and reflections, eschewing a simplistic approach to moral behaviour, and instead exploring and understanding complex motivations and ethical dilemmas associated with human behaviour and actions.

Teachers should make deliberate attempts to infuse and reinforce the importance of peace-related values that are commensurate with the textual material taught in school and the developmental stages of children. For example, teachers can take advantage of the hidden components in a lesson by using appropriate strategies to awaken positive feelings, identifying experiences worth reflecting and, exploring, discovering, constructing understanding peace-related values.

Strategies like questions, stories, anecdotes, games, experiments, discussions, dialogues, clarification of values, examples, analogies, metaphors, role playing, and simulation are helpful in promoting peace through teaching-learning. The teaching and practise of ethics go from the personal sphere to social and community-oriented thinking and then link up with global perspectives. A teacher who is oriented to the perspective of peace can introduce such opportunities for reflecting at these scales, and identifying the inter linkages between them. Teacher education programmes should consider introducing peace education as an optional subject of study.

3.9 HABITAT AND LEARNING

The habitat is where any species finds conditions that permit it to thrive. Learning is a vital faculty of all animal species. Animals learn about the features of their own habitat by picking up clues as to where they may expect to find food or meet social companions or encounter enemies. For our ancestors, knowledge thus began with the exploration of their habitat. But as human beings' control over the environment has increased, and as people have begun to mould the world more and more to suit their needs, this component of knowledge has diminished so much that today formal education has become largely alienated from the habitat of the students. But as environmental degradation proceeds at an uprecedented pace, we are beginning to realise the importance of taking good care of our habitat. Humankind must, therefore, make an attempt to comprehend its roots, to re-establish links with its habitat, and to understand and take good care of it. In substance and spirit, then the theme ' Habitat and Learning' is equivalent to environmental education.

These significant concerns are best realised by infusing the components of environmental education as part of different disciplines while ensuring that adequate time is earmarked for pertinent activities. This approach can be meaningfully employed in the treatment of content in Physics, Mathematics, chemistry, Biology, geography, History, political science, health and physical education, art, music etc. Actvities constructed for life situations become a meaningful means for the engagement of learners. Rainfall, for instance, exhibits intricate variations over space and time. Data on such variations are available and can be used to promote many interesting activities in Physics and Mathematics. In Physics, simple experiments may be devised to visualise patterns of flow of fluids over uneven terrain, as well as to demonstrate how the ascent of air leads to cooling and precipitation and descent to the opposite effects. In Mathematics, a careful analysis of data for a longer period, say, 50 years, on decline in rainfall provides excellent possibilities for projects relating to data representation, visualisation and interpretation. Likewise, effluents from sewage treatment plants can form meaningful raw material for a variety of projects in chemistry. Besides, schools could work with panchayats, municipalities and city corporations to document biodiversity resources and associated knowledge. Schools can take up projects in Biology addressing specific issues of interest, such as the occurrence and utilisation of medicinal plants or the protection of rare and endangered fish in a body of water. People's representations of the environment and its specifics (animals, forests, rivers, plants etc.) through various forms of art, music, dance and craft illustrate their understanding of biodiversity. Such an understanding is also linked to the life of members of Scheduled Caste and Scheduled Tribe communities as they often depend on natural biodiversity resources to sustain their livelihoods. Recording such knowledge is part of the mandate of preparing of people's

biodiversity registers, and students can fruitfully be engaged in projects on the preparation of such registers. Projects assessing the nutritional role of wild plants, which provide important nutritional supplements in the diets of tribal communities, can be worthwhile components of health education. Likewise, preparation of maps of the immediate environment, documentation of environmental History, and analysis of political issues related to the environment may be made part of projects in geography, History and political science. Conflicts over water at the local, state, national and international levels offer a rich source for designing a variety of activities and projects connecting these descriptions of knowledge.

3.10 SCHEMES OF STUDY AND ASSESSMENT

The word 'school' all over the country by and large refers to Classes I to X, extending to class XII in some states, while in other states Classes XI and XII are regarded as pre-university or junior college. Some schools also include two to three years of pre-school classes. The breaking up of schooling into four 'stages' extends far beyond mere administrative convenience. From the point of view of curriculum design and teacher preparation, these stages have a developmental validity. Seen from a stage-wise perspective, curriculum thinking and school organisation can overcome problems created by the current preoccupation with 'monograde' classrooms as being the norm, with rigid application of age-based grouping of children, and class-wise teaching and learning objectives. Single and two- teacher primary schools could be reconceptualised as a learning group with different abilities and learning needs rather than as 'multigrade' classrooms requiring time- management techniques. Assessing children for what they have learnt could also then take place over a longer cycle of years spent in school, rather than as yearly requirements spelt out for each class, in hierarchical progression. This would allow more respect for children's pace of learning. Schemes such as the Minimum Levels of Learning (MLL) reinforced not only the rigid adherence to year-end outcomes, but also allowed for these to be further narrowed to lessons. Describing the characteristics and concerns of the curriculum, pedagogy and assessment in stages allow syllabi, textbooks and learning resources, and for teachers to plan for children's development and the gradual and cumulative deepening of abilities, competencies and concepts.

3.10.1 Early Childhood Education

The early childhood stage, until the age of 6–8 years, is the most critical period when the foundations are laid for life-long development and the realisation of full potential; research shows that there are 'critical periods' at this stage for full development of the brain's potential. The formation of later attitudes and values as well as the desire to learn are also influenced at this stage, while lack of support or neglect can lead to negative consequences, sometimes irreversible. Early Childhood Care and Education (ECCE) requires that young children be provided care, opportunities and experiences that lead to their all-round development — physical, mental, social and emotional, and school readiness. A holistic and integrated perspective views the health and nutritional needs of children as integrally related with their psychosocial/educational development. The curriculum framework and pedagogy for ECCE must be based on this holistic perspective, taking into account the various domains of development, the characteristics of children at each sub-stage, and their learning needs in terms of experiences.

It is well known that children have a natural desire to learn and make sense of the world around them.

Learning in the early years must hence be directed by the child's interests and priorities, and should be contextualised by her experiences rather than being structured formally. An enabling environment for children would be one that is rich in stimulation and experiences, that allows children to explore, experiment and freely express themselves, and one that is embedded in social relations that give them a sense of warmth, security and trust. Playing, music, rhyming, art and other activities using local materials, along with opportunities for speaking, listening and expressing themselves, and informal interaction are essential components of learning at this stage. It is important that the language used in early education is one that the child is familiar with in the immediate environment, while an informal multilingual classroom would help children to comfortably adjust to the early introduction of a second language (English) and the medium of instruction from Class I onwards. As the children who come under the purview of ECCE are a heterogeneous group, ranging from infants to pre-schoolers, it is important that activities and experiences for them are developmentally appropriate.

Early identification of disabilities assessment and the provision of appropriate stimulation would go a long way in preventing the aggravation of disadvantage on this account. The caution would be against pressurising children into the three R's (reading, writing and arithmetic) and the early introduction of formal instruction, i.e. against making pre-schools into training centres for admission to primary schools. In fact, the suggestion is that ECCE cover the age group 0–8 years (i.e. so as to include the early primary school years). This is in order that the holistic perspective of ECCE and its methodologies (all- round and integrated development, activity-based learning, listening and speaking a language before learning to write it, contextuality and continuity between home and school) can inform learning experiences of children throughout the childhood stage and lead to a smooth transition into the elementary school stage.

The ECCE programmes present a picture of plurality, with government, non-government (voluntary sector) and private agencies providing a variety of services. However, the coverage of these programmes is extremely narrow, and the quality of services provided is variable and largely poor. A vast majority of children, especially those belonging to poor and marginal groups, are not covered by early care programmes and are left to fend for themselves. Pre-school programmes range from those that subject children to a dull and monotonous routine to those where children are exposed to structured formal learning, often in English, made to do tests and homework, and denied their right to play. These are undesirable and harmful practices that result from misguided parental aspirations and the growing commercialisation of pre-schooling, and are detrimental to children's development and motivation to learn. Most of these problems derive from the still 'unrecognised' status of ECCE as a part of the mainstream education system. Polarised services both reflect and perpetuate the multiple overlapping social divides in our country. The deep gender bias and pervasive patriarchal values in Indian society are responsible for the failure to recognise the need for cre'ches and day-care facilities, especially for children of poor rural and urban working women; this neglect has also had an adverse impact on the education of girls.

Good quality ECCE programmes have a positive impact on children's all-round development. This in itself is reason enough to demand that all children have a right to ECCE, and it is hence unfortunate that the 0–6 age

group has been excluded from the purview of Article 21. In addition, ECCE is also seen to have critical linkages with enrolment of children in schools and learning outcomes. To provide ECCE of equitable quality to all children, it is not only necessary to vastly enhance the funds committed for this purpose, but also to address through different strategies the five basic dimensions of quality, namely, developmentally appropriate curriculum, trained and adequately rewarded teachers, appropriate teacher-child ratio and group size, infrastructure supportive of children's needs, and an encouraging style of supervision. While there is need for decentralisation, flexibility and contextuality in these programmes, there is also an urgent need to evolve appropriate norms and guidelines and set in place a regulatory framework so that children's development is not compromised. Capacity building at all levels in relation to the plurality of roles that different functionaries play, as well as fair wages, must also be ensured.

3.10.2 Elementary School

The period of elementary school (from Class I to Class VIII) is now also recognised as the period of compulsory schooling vide the constitutional amendment making education a fundamental right. The beginning of this period marks the formal introduction of the child to reading, writing and arithmetic, culminating in the introduction of the formal disciplines such as the sciences and the social sciences towards the end of elementary school. This period of eight years is one of tremendous cognitive development, shaping reason, intellect and social skills, as well as the skills and attitudes necessary for entering the work place.

As the effort to achieve UEE is stepped up, the elementary school classes now cater to many children of school-going age coming from diverse backgrounds. Plurality and flexibility without compromising on standards need to become the hallmark of education for this period. Education during this period must be of an integrated character, enabling children to acquire facility in language and expression and to grow in self-confidence as learners, both within and outside school.

The first concern of the school is on the development of the child's language competence: issues related to articulation and literacy, and the ability to use language to create, to think and to communicate with others. Special stress is needed to ensure that there are maximum opportunities for those who wish to study in their mother tongue, including tribal languages and linguistic pockets, even if the number of students is small. The ability of the system to promote and nurture these options, along with working out mechanisms to ensure that future options remain open, should become a marker of its ability to provide for quality education. To achieve this, there must be a creative and concerted effort to maintain the multilingual genius of Indians and implement the three-language formula. While English may be taught during this period, it must not be at the expense of learning Indian languages.

The development of mathematical thinking, beginning with learning numeracy and moving towards the enjoyment of and facility with more abstract ideas, needs to be supported with concrete experiences and work with manipulations. It is in the early years, up to Class IV, that efforts at diagnosing learning difficulties and addressing remedial work in language and mathematics must be directed.

Such concrete experiences are also essential in the introduction to the integrated study of the environment through which children's intuitive knowledge of the world is integrated into school knowledge. Over the years, this study should move towards a more disciplinary approach, but with integrative themes, within which there are located opportunities to develop

concepts and learn the vocabulary and methods of the discipline.

The study of arts and crafts is essential for developing not only the aesthetic sensibility but also for learning how to manipulate materials and developing attitudes and skills essential for work. The curriculum must expose children to practical life skills and work experiences of varied kinds. Physical development through sports activities is also a must. A variety of activities at this stage of schooling should be made available, including participating in cultural programmes, organising events, travelling to places outside the school, providing experiences to develop socially and emotionally into creative and confident individuals sensitive to others, and capable of taking initiative and responsibility. Teachers with a background in guidance and counselling can design and lead activities to meet the developmental needs of children, thus laying the foundation for the necessary attitudes and perceptions towards the self and the world of work. They can also provide the needed support and guidance to children belonging to various strata of society for their sustenance through the elementary school years. The approach to the whole curriculum should be process oriented rather than outcome oriented. All these arenas of development should be made available to all children. Care must be taken to ensure that the curriculum does not reinforce stereotypes about preferences, choices and capabilities of different groups. In this context, the gradual inclusion of vocationally oriented skills as a part of exposure to work would be an important aspect of an inclusive curriculum.

3.10.3 Secondary School

Secondary school is a period of intense physical change and formation of identity. It is also the period of intense vibrancy and energy. The ability for abstract reasoning and logical thinking emerges, allowing children the possibility of deep engagement with both understanding and generating knowledge beyond the here and now. A critical understanding of the self in relation to society also emerges during this period.

The courses at this level generally aim at creating an awareness of the various disciplines and introduces students to the possibilities and scope of study in them. Through such engagement, they also discover their own interests and aptitudes and begin to form ideas on what courses of study and related work they might like to pursue later. Such needs could be effectively met by guidance and counselling interventions of an organised nature with the support of trained teachers and professional counsellors. For a large number of children, this is also a terminal stage, when they leave school and begin acquiring productive work skills. Those for whom this stage becomes terminal on account of socio-economic circumstances need opportunities for learning creative and productive work skills while the system as a whole moves towards universalising secondary education. Providing access to libraries and experience in laboratories is essential, and hence there must be a concerted effort to ensure that all children have access to such facilities.

These two years are shadowed by the spectre of achieving respectable 'board examination' marks in this examination since this will determine future options. Schools often proudly state that they finish the entire syllabus for Class X by the end of the first term, and spend the rest of the year (two terms) on revision, so that students are well prepared for their examination. Class IX of this stage, and later Class XI, are sacrificed for the same reason. This preoccupation with the examination, and its deleterious effect on learning, needs to be reviewed and challenged. Is it worth

wasting a year of perhaps the most fruitful period of a child's life in such non-productive engagement? Is it not possible that by pacing learning more evenly through out the year, we may serve preparation for the examination itself in a much better way? On account of the examinations, many other curricular areas, especially sports and arts, are also compromised. It is necessary to ensure that these areas are protected, and also that a serious attempt is made to institute meaningful experiences of work during this period.

Most boards in the country offer limited or no optional courses in this period; two languages (one of which is English), Mathematics, science and social sciences are the typical examination subjects. In this group, the courses of Mathematics and English, which are responsible for the 'failure' of a large number of students, need to be revisited and redesigned. The policy of declaring pass–fail in the whole examination, and the meaning of the 'pass mark', may also need to be reviewed. Related issues are discussed in Chapter 5, in the section on examination reforms.

A few boards also encourage students to choose an optional course from a range that includes economics, music and cookery. Such options could be increased, and the possibilities of substituting the more traditional disciplines with these options could also be considered. Vocational options could also be introduced. Many such vocational options may arise from the world of productive work in the local community. For example, auto maintenance in garages, tailoring and paramedical services offer possibilities for collaboration to create meaningful vocational courses; school boards could accredit such learning and thereby also recognise the many sites of learning that are situated outside school. In our country, many vocational stream courses have deteriorated in their quality, and hence are unable to provide students with meaningful work-related knowledge and skills. In many cases, these courses have degraded into routine credentialing courses, and make no distinction between learning to do a job versus learning to get a job.

3.10.4 Higher Secondary School

The status of the academic and vocational streams at the higher secondary stage needs to be reviewed in view of the continued preoccupation with and influence of the board and entrance examinations, and in view of the continued privilege given to the so-called academic stream and the failure of the vocational stream to take off. During this period of two years students make choices based on their interests, aptitudes and needs regarding their future life.

The possibilities of choosing optional courses of study for exploring and understanding different areas of knowledge, both in relation to one's interest and one's future career, is integral to this stage. Exploring disciplines and approaching problems and issues from rich interdisciplinary perspectives are possible at this stage. There is a need to allow for such investigations to take place between and outside the 'subjects' chosen for study.

Most boards of study offer a variety of subject areas in addition to the compulsory language courses. There is a concern about the formal or informal restrictions that operate to narrow the choice of subjects of study for students. Several boards restrict the combinations in the form of 'the science stream', 'the arts stream' and 'the commerce stream'. The CBSE does not restrict the possibility of combinations that students can choose, but in view of the increasing popularity of some combinations of subjects of study, and also because of a perception of status of subjects in relation to each other, many such options are now foreclosed to students. Further, universities also need to review their admission criteria as they currently restrict admission

based on the kinds and combinations of courses studied at the +2 stage. As a consequence, many significant and meaningful combinations of study, such as, for example, Physics, Mathematics and Philosophy, or Literature, Biology and History, are closed to students.

Recent trends of schools tailoring their classes to medical and engineering courses have led to an artificial restriction on the courses they offer in school, arguably on grounds of popularity and timetabling. In many parts of the country, students who want to study the arts and liberal subjects are left with very few options. Schools also discourage students from opting for unconventional combinations, often on account of timetabling considerations. We believe it is essential to keep all options open for students. In case there are not enough students in a school opting for a particular subject, schools could consider working out arrangements with other schools in the neighbourhood so that they could employ a resource teacher together. Such resource teachers could also be employed at the block level to teach such special subjects that would not otherwise be available in a school. School boards may also consider a more active role in promoting subjects and streams of study.

The courses offered at the +2 stage need to be alive to recent and current developments in the disciplines, as new knowledge areas are carved out, disciplinary boundaries shift and multidisciplinary studies develop. To allow students to engage with areas of study that are growing in importance within the disciplines and fields, courses could also be designed to offer optional modules, rather than trying to cover everything and packing courses with too much information. For example, History could have an optional module to study either Archaeology or World History; similarly, Physics could offer the options of Astronomy, Space Science and Rocketry etc.

Under pressure to 'cover' vast syllabi, many important aspects of learning such as practicals and field trips, and ways of learning such as reference work, project work and presentations, are not fully utilised, to the detriment of overall learning. Well -equipped laboratories and libraries, and access to computers, are essential, and all efforts must be made to ensure that schools and junior colleges are well equipped with such resources.

The vocational stream originally was meant to address the needs of those who would enter the work force earlier than those who would enter the professions via the traditional academic streams, or those who would pursue study and research. We recommend infusing productive work as a pedagogic medium for knowledge acquisition, developing values and multiple skill formation at all stages of education, including the +2 stage.

Given the developmental nature of this stage, guidance and counselling by trained professionals must be made available to children. Interventions to enhance self/career awareness, career exploration and planning are also essential. Besides, this stage coincides with adolescence, a period in an individual's life that is marked by personal, social and emotional crises created due to the demands of adjustment required in family, peer group and school situations. The provision of these services in schools would help create the support system required to cope with increasing academic and social pressures.

3.10.5 Open Schooling and Bridge Schooling

Beginning with the National Open School, open school boards, which have begun to function in a few states, now are able to provide much more flexibility and options for students. The range of subjects they offer is wide. With more flexibility in examination taking,

The purpose of evaluation is not

- √ *to motivate children to study under threat.*
- √ *to identify or label children as 'slow learners', or 'bright students', or 'problem children'. Such categories segregate children, placing the onus for learning solely on them, and detract from the role and purpose of pedagogy.*
- √ *to identify children who need remediation (this need not wait for formal assessment; it can be detected by the teacher in the course of teaching and attended to as a part of pedagogic planning, through individualised attention).*
- √ *to diagnose learning difficulties and problem areas—while broad indications about conceptual difficulties can be identified via evaluation and formal testing. Diagnosis requires special testing instruments and training. It is also specific to foundational areas of literacy and numeracy, and is not meant for subject areas.*

and the possibility of credit transfer from other boards, open schools have been able to provide a more humane approach to the process of certification. Knowledge about and access to open schools could be more widely disseminated along with efforts to address misconceptions regarding equivalence with other board examinations. By scheduling these examinations closer to the dates of other board examinations, it would also be possible to ensure that students do not lose a school year.

Bridge courses are conducted widely in many parts of the country to enable children who are out of school to study in programmes and become integrated into classes suitable to their age. In the medium term, it is essential to have well - conceived programmes that are able to meet this curricular objective. Anything less than this would exacerbate the deprivation that these children have already suffered, and constitute a flagrant disregard of their rights. Rigorous research and development of the pedagogy and materials required for such programmes to succeed, stringent implementation norms and provisioning of facilities, as well as continued academic and social support for these children after they have been placed in school are essential.

3.11 ASSESSMENT AND EVALUATION

In the Indian education system, the term evaluation is associated with examination, stress and anxiety. All efforts at curriculum definition and renewal come to naught if they cannot engage with the bulwark of the evaluation and examination system embedded in schooling. We are concerned about the ill effects that examinations have on efforts to make learning and teaching meaningful and joyous for children. Currently, the board examinations negatively influence all testing and assessment through out the school years, beginning with pre-school.

At the same time, a good evaluation and examination system can become an integral part of the learning process and benefit both the learners themselves and the educational system by giving credible feedback. This section addresses evaluation and assessment as they are relevant to the normal course of teaching-learning in the school, as a part of the curriculum. Issues relating to the examination system, and in particular to the board examinations, are addressed separately in Chapter 5.

3.11.1 The Purpose of Assessment

Education is concerned with preparing citizens for a meaningful and productive life, and evaluation should be a way of providing credible feedback on the extent to which we have been successful in imparting such an

education. Seen from this perspective, current processes of evaluation, which measure and assess a very limited range of faculties, are highly inadequate and do not provide a complete picture of an individual's abilities or progress towards fulfilling the aims of education.

But even this limited purpose of evaluation, of providing feedback on scholastic and academic development, can be achieved only if the teacher is prepared even before the course of teaching begins, armed with not only the techniques of assessment but also the parameters for evaluation and the various tools that will be employed. In addition to judging the quality of the students' achievements, a teacher would also need to collect, analyse and interpret their performances on various measures of the assessment to come to an understanding of the extent and nature of the students' learning in different domains. The purpose of assessment is necessarily to improve the teaching-learning process and materials, and to be able to review the objectives that have been identified for different school stages by gauging the extent to which the capabilities of learners have been developed. Needless to say, this does not mean that tests and examinations will have to be conducted frequently. On the contrary, routine activities and exercises can be employed effectively to assess learning.

Well-designed assessment and regular report cards provide learners with feedback, and set standards for them to strive towards. They also serve to inform parents about the quality of learning and the development and progress of their wards. This is not a means of encouraging competition; if one is looking for quality in education, then segregating and ranking children and injecting them with feelings of inferiority cannot do it.

Last, credible assessment provides a report, or certifies the completion of a course of study, providing other schools and educational institutions, the community and prospective employers with information regarding the quality and extent of learning.

The popular notion that evaluation can lead to identifying the needs of remediation, to be attended to with remedial teaching, has created many problems in curriculum planning. The term remediation needs to be restricted to specific/special programmes that enable children who are having a problem with literacy/reading (associated with reading failure and later with comprehension) or numeracy (especially the symbolic aspects of mathematical computation and place value). Teachers require specific training for effective diagnostic testing that can be of assistance in remediation efforts. Similarly, remedial work would require specifically developed materials and planning so that the teacher is able to give one-on-one time to work with the child,

Competencies

Competencies is an attempt to shift the focus of teaching and related assessment away from superficial textbook-based factual content. However, in the MLL approach, competencies are broken up into detailed sub-competencies and sub-skills, assuming that the sum of these sub-skills is the competency. Frequently, with the focus on behaviour and performance concepts may not even feature in the assessment. This logical yet mechanical listing of sub-skills and rigid timetables for their achievement does not reflect either the concern that learning and use of the competency may itself be more flexible, or that the cycle over which competencies are learnt need not follow the timing or pace described, or that the whole may be greater than the sum of the parts.

Designing learning and test items for these detailed lists, and teaching to these learning outcomes, is impractical and pedagogically unsound.

beginning with what she/he knows and moving to what she/he needs to learn, through a continuous process of assessment and careful observation. Indiscriminate usage of the term distracts from the general problems of effective pedagogy, and makes the child solely responsible for her/his learning and also learning 'failure'.

3.11.2 Assessing Learners

Any meaningful report on the quality and extent of a child's learning needs to be comprehensive. We need a curriculum whose creativity, innovativeness, and development of the whole being, the hallmark of a good education makes uniform tests that assess memorised facts and textbook -based learning obsolete. We need to redefine and seek new parameters for and ways of evaluation and feedback. In addition to the learner's achievements in specific subject areas that lend themselves to testing easily, assessment would need to encompass attitudes to learning, interest, and the ability to learn independently.

3.11.3 Assessment in the Course of Teaching

Preparing report cards is a way for the teacher to think about each individual child and review what she/he has learnt during the term, and what she/he needs to work on and improve. To be able to write such report cards, teachers would need to think about each individual child, and hence pay attention to them during their everyday teaching and interaction. One does not need special tests for this; learning activities themselves provide the basis for such ongoing observational and qualitative assessments of children. Maintaining a daily diary based on observation helps in continuous and comprehensive evaluation. An extract from the diary of a teacher for a week notes the following: "Kiran enjoyed his work. He took an instant liking to the books that were informative and brief. He says that he likes simple and clear language. In noting down facts, he goes for short answers. He says that it helps him understand things easily. He favours a practical approach." Similarly, keeping samples and notes of the child's work at different stages provides both the teacher and the learner herself or himself with a systematic record of his/her learning progress.

The belief that assessment must lead to finding learning difficulties to then be remediated is often very impractical and not founded on a sound understanding of pedagogic practice. Problems regarding conceptual development cannot and do not wait for formal tests in order to be detected. A teacher can, in the course of teaching itself, come to know of such problems by asking questions that make children think or by giving them small assignments. She can then attend to them in the process of teaching–by ensuring that her planning is flexible and responsive to the learners and their learning.

3.11.4 Curricular Areas that cannot be 'Tested for Marks'

Each area of the curriculum may not lend itself to being 'tested'; it may even be antithetical to the nature of learning in the curricular area. This includes areas such as work, health, yoga, physical education, music and art. While the skill-based component of physical education and yoga could be tested, the health aspect needs continuous and qualitative assessments. Currently, this has the effect of making these subjects and activities 'less important' in the curriculum; these areas are inadequately provided for in terms of material resources and curricular planning, and marked by a lack of seriousness. Further, the time allocated for them is also frequently sacrificed to accommodate special classes. This is a serious compromise with parts of the curriculum that have deep educational significance and potential.

Even if 'marks' cannot be given, children can be assessed for their development in these areas. Participation, interest, and level of involvement, and the extent to which abilities and skills have been honed, are some markers that can help teachers to gauge the benefits of what children learn and gain through such activities. Asking children to self-report on their learning can also provide teachers with insight into children's educational progress and give them feedback on improving curriculum or pedagogy.

3.11.5 Design and Conduct of Assessment

Assessments and examinations must be credible, and based on valid ways of gauging learning.

As long as examinations and tests assess children's ability to remember and recall textbook knowledge, all attempts to redirect the curriculum towards learning will be thwarted. First, tests in knowledge-based subject areas must be able to gauge what children have learnt, and their ability to use this knowledge for problem solving and application in the real world. In addition, they must also be able to test the processes of thinking to gauge if the learner has also learnt where to find information, how to use new information, and to analyse and evaluate the same.

The types of questions that are set for assessment need to go beyond what is given in the book. Often children's learning is restricted as teachers do not accept their answers if they are different from what is presented in the guidebooks.

Questions that are open-ended and challenging could also be used. Designing good test items and questions is an art, and teachers should spend time thinking about and devising such questions. The interest and ability of teachers to design good questions can be promoted through district- or state-level competitions. All question papers must be designed graded for difficulty in order to permit all children to experience a level of success, and to gain confidence in their ability to answer and solve problems.

Trying to devise a good and effective open-book examination can be a challenge that we must try to take up in our curricular efforts at all levels of school. This would require teachers and examination setters to emphasise the interpretation and application of learning over the arguments and facts that can be located in the book. There have been successful demonstrations that such examinations can be carried out on a large scale, and that teachers can themselves be trusted with moderating the results of such examinations. In this way, the assessment of projects and lab work can also be made credible and sound.

It is important that after receiving their corrected papers, children rewrite the answers and that these are again reviewed by teachers to ensure that children have learnt and gained something out of the ordeal.

Posing Questions

State four considerations to be kept in mind while setting up an iron-smelting plant.

Versus

If an industrialist wanted to establish an iron - smelting plant, which site should she choose and why?

How does the shape of a bird's beak help in adaptation?

Versus

Draw the beak of a common bird seen in your neighbourhood. Based on the shape of the beak, explain what are likely to be the bird's food habits and where in your neighbourhood it is likely to find its food.

Competition is motivating, but it is an extrinsic rather than intrinsic form of motivation. It is, of course, much easier to establish and to manipulate, and therefore frequently resorted to by teachers and school systems as a way creating and nurturing the drive for excellence. Schools begin 'ranking' children as early as their pre-primary years as a way of inculcating in them a competitive spirit. Such a competitive drive has several negative side effects on learning; often superficial learning is sufficient to create and maintain impressions, and over time students lose their ability to take initiative or do things for the fulfilment of one's own interest; hence, areas that cannot be 'marked' are neglected. This has unhealthy consequences for classroom culture, making children individualistic and unsuited to team work. There is an absurd and unnecessary importance given to term examinations, often accompanied by extreme arrangements of invigilation and secrecy. While the physical and psychological effects of this may not be readily visible until middle school, they frequently lead to high levels of stress in children, and cause early burnout. Schools and teachers need to ask themselves whether there is really much to be gained out of such practices and to what extent learning requires such systems of marking and ranking.

3.11.6 Self-assessment and Feedback

The role of assessment is to gauge the progress that both learner and teacher have made towards achieving the aims that have been set and appraising how this could be done better. Opportunity for feedback, leading to revision and improvement of performance, should constantly be available, without exams and evaluations being used as a threat to study.

Grading and correction carried out in the presence of students and providing feedback on the answers they get right and wrong, and why. Asking children about why they answered what they did assists teachers in going beyond the written answer to engage with children's thinking. Such processes also take away the frightening judgemental quality of marks obtained in a test, and enable children to understand and focus on their mistakes and learn through these mistakes. Sometimes head teachers object, claiming that correction in the presence of the child reduces 'objectivity'. This is a misplaced concern for 'objectivity', stemming from a competitive system that believes in judging children. Such a concern for 'objectivity' is misplaced in evaluation, which is consistent with educational goals.

Not only learning outcomes but also learning experiences themselves must be evaluated. Learners happily comment on the totality of their experience. Exercises, both individual and collective, can be designed to enable them to reflect on and assess their learning experiences. Such experiences also provide them with self-regulatory capabilities essential for 'learning to learn'. Such information is also valuable feedback to the teacher, and can be used to modify the learning system as a whole.

Every classroom interaction with children requires their evaluation of their own work, and a discussion with them about what should be tested and the ways of finding out whether the competencies are being developed or not. Even very young children are able to give correct assessments of what they can or cannot do well. The role of teaching is to provide an opportunity to each child to learn to the best of his or her ability and provide learning experiences that develop cognitive qualities, physical well-being and athletic qualities, as also affective and aesthetic qualities.

Report cards need to present to children and parents a comprehensive and holistic view of the child's

development in many fields. Teachers must be able to say things about each child/student, that conveys to them a sense of individualised attention, reaffirms a positive self-image, and communicates personal goals for them to work towards. Whether it is marks or grades that are reported, a qualitative statement by the teacher is necessary to support the assessment. Only through such a relationship with each child can any teacher succeed in influencing him/her, and contributing to his/her learning. Along with the teacher assessing each child, each student could also assess himself or herself and include this self-assessment in the report card.

Currently, many report cards carry information on subject areas and have nothing to say about other aspects of the child's development, including health, physical fitness and abilities in games, social skills, and abilities in art and craft. Qualitative statements about these aspects of children's education and development would provide a more holistic assessment of educational concerns.

3.11.7 Areas that Require Fresh Thinking

There are many areas of the curriculum that can be assessed but for which we still do not have reliable and efficient instruments. This includes assessing learning that is carried out in groups, and learning in areas such as theatre, work and craft where skills and competencies develop over longer time scales and require careful observation.

Continuous and comprehensive evaluation has frequently been cited as the only meaningful kind of evaluation. This also requires much more careful thinking through about when it is to be employed in a system effectively. Such evaluation places a lot of demand on teachers' time and ability to maintain meticulous records if it is to be meaningfully executed and if it is to have any reliability as an assessment. If this simply increases stress on children by reducing all their activities into items for assessment, or making them experience the teacher's 'power', then it defeats the purpose of education. Unless a system is adequately geared for such assessment, it is better for teachers to engage in more limited forms of evaluation, but incorporating into them more features that will make the assessment a meaningful record of learning.

Finally, there is a need to evolve and maintain credibility in assessment so that they perform their function of providing feedback in a meaningful way.

3.11.8 Assessment at Different Stages

ECCE and Classes I and II of the Elementary Stage : At this stage, assessment must be purely qualitative judgements of children's activities in various domains and an assessment of the status of their health and physical development, based on observations through everyday interactions. On no account should they be made to take any form of test, oral or written.

Class III to Class VIII of the Elementary Stage : A variety of methods may be used, including oral and written tests and observations. Children should be aware that they are being assessed, but this must be seen by them as a part of the teaching process and not as a fearful constant threat. Grades or marks along with qualitative judgements of achievement and areas requiring attention are essential at this stage. Children's own self-evaluation can also be a part of the report card from Class V onwards. Rather than examinations, there could be short tests from time to time, which are criterion based. Term-wise examinations could be commenced from Class VII onwards when children are more psychologically ready to study large chunks of material and, to spend a few hours in an examination room, working at answering questions. Again, the progress card must indicate general observations on health and nutrition, specific observations on the overall

progress of the learner, and information and advice for the parents.

Class IX to class XII of the Secondary and Higher Secondary Stages : Assessment may be based more on tests, examinations and project reports for the knowledge-based areas of the curriculum, along with self-assessment. Other areas would be assessed through observation and also through self-evaluation.

Reports could include much more analysis about the students, various skill/knowledge areas and percentiles, etc., This would assist them by pointing out the areas of study that they need to focus on, and also help them by providing a basis for further choices that they make regarding what to study thereafter.

It's really cruel burdening kids like this. I had to hire that boy to help my son!
(Courtesy : R. K. Laxman in the Times of India)

4.1 The Physical Environment

4.2 Nurturing an Enabling Environment

4.3 Participation of All Children

4.4 Discipline and Participatory Management

4.5 Space for Parents and the Community

4.6 Curriculum Sites and Learning Resources

4.7 Time

4.8 Teacher's Autonomy and Professional Independence

Chapter 4: School and Classroom Environment

Learning takes place within a web of social relationships as teachers and pupils interact both formally and informally. Schools are institutional spaces for communities of learners, including both students and teachers. Play and scuffle with one's friends on the school grounds, free time to sit on the benches and chat with one's friends during breaks, gathering together for morning assembly and other festive and significant occasions in the school, studies carried out in the classroom, anxious turning of pages before a class test, and trips made with one's classmates and teachers to places outside the school — all these are activities bringing the community together, giving it the character of a learning community. Behind the scenes, but still significant in giving the school its character, are the teachers and the headmaster, planning and carrying out daily routines, examinations and special events that mark the school calendar. How can we organise the environment in the school and classroom so that such interactions support and enhance both teaching and learning? How can the space of the school be nurtured as a context where children feel safe, happy and wanted, and which teachers

find meaningful and professionally satisfying? The physical and psychological dimensions of the environment are important and are interrelated. In this chapter we examine these environments to understand how they significantly influence children's learning.

4.1 THE PHYSICAL ENVIRONMENT

Children are constantly interacting with the physical environment of their schools during structured or unstructured time, consciously or unconsciously. Yet not enough attention is paid to the importance of physical environment for learning. Often classrooms are overcrowded, with no alternative spaces to learn, nor are they attractive, inviting or sensitive towards children's needs. Inappropriate school design may drastically affect the teacher's productive output and classroom management. In fact, the role of this all - encompassing, physical environment has been restricted merely to shelter the educational activity.

When children are asked about the kinds of spaces they like, very often they want to be in a place that is colourful, friendly, and peaceful, with lots of open space offering with small nooks and corners, animals, plants, flowers, trees, and toys. In order to attract and retain children, the school environment must have all these elements in and around them.

Classrooms can be brightened up by first ensuring adequate natural light inside and then made lively by displaying children's work on the classroom walls as well as in different parts of the school. Drawings, art and craftwork put up on the walls and shelves send out a powerful message to children and their parents that their work is appreciated. These must be displayed at locations and heights that are physically and visually comfortably accessible to children of various ages. Many of our schools continue to function in dilapidated and dingy buildings, presenting a dull, drab and

Learning through the physical space:

Children perceive their world through multiple senses, especially the tactile and visual senses. A three-dimensional space can offer a unique setting for a child to learn because it can introduce a multiple sensory experience to accompany the textbook or blackboard. Spatial dimensions, textures, shapes, angles, movements and spatial attributes like inside – outside, symmetry, up – down, can be used to communicate some basic concepts of language, science, mathematics and the environment. These concepts can be applied to existing as well as new, to - be - built spaces.

- √ ***Classroom space:*** *A window security grill can be designed to help children practise pre-writing skills or understand fractions; a range of angles can be marked under a door shutter on the floor to explain the concept of angles; or a classroom cupboard can be modified to be used as a library; or a ceiling fan can be painted with a range of colour wheels for children to enjoy the ever-changing formations.*
- √ ***Semi-open or outdoor space:*** *The moving shadows of a flag-pole acting like a sundial to understand the different ways of measuring time; planting winter deciduous trees that shed their leaves in winter and are green in summer to make a comfortable outdoor learning space; an adventure playground could be developed here using discarded tyres; a counter space to simulate a bus/train/post office/shop counter; an activity space for playing with mud and sand and making one's own mountains, rivers, and valleys in an outline map of India; or space exploration and discovery; space to explore three dimensions; or the outdoor natural environment with plants and trees that allow children to explore and create their own learning materials, colours, discover nooks and corners; grow a herbal garden; and actually see and practise rainwater harvesting.*

unstimulating physical setting. This can be changed with simple innovations, with the combined efforts of schoolteachers, administrators and architects.

Buildings are the most expensive physical assets of a school. Maximum educational value should be derived from them. Creative and practical solutions can be used to maximise this educational value while repairing or upgrading existing schools or making new buildings. The enhancement of the physical environment through this can bring about not just a cosmetic change but also an inherent transformation in the way that physical space connects with the pedagogy and the child. In many parts of the country, schools and classrooms have large permanent displays painted on the walls. Such visuals are over-stimulating, and with time they become monotonous and cease to enhance the quality of the space. Instead, smaller sized, judiciously chosen murals may be a better way of adding colour to the school. Most of the wall display area should be utilised for children's own work, or charts made by the teacher, and these should be replaced every month. Preparing such wall displays, and participating in putting them up, can be also valuable learning activities for children.

Many schools lack playgrounds for outdoor learning activities. This compromises the quality of learning provided through the curriculum.

Ensuring that minimum requirements of infrastructure and materials are available, and supporting flexible planning that will help achieve curricular aims are important features that heads of school, cluster and block functionaries should focus on in their support to teachers. This applies to almost all aspects of school life. The many new pedagogies that have been promoted through efforts such as the one suggested by DPEP — that the physical layout of the classroom could be altered so that children can sit together in small groups, or gather in a large circle for story telling, or sit on their own for carrying out some individual reading or writing tasks, or assemble in a group near the radio or TV for a broadcast. For this, the arrangement of desks and chairs, benches and *daris* could be altered. Many schools have begun to acquire simple furniture that is suitable for such flexible organisation. Single small *chowkis*, or desks and chairs for individual or pairs of children, and *daris* are well suited for such classrooms, and could be adapted or altered to suit the needs of children with disabilities. But still many schools invest in heavy metal benches and long desks, which can only be placed in rows, and which reinforce the teacher and blackboard-centred system of learning. Worse still, many of these do not have adequate place for children to keep their books and belongings, nor are they wide enough or with back support suitable for the physical comfort of the child. Such furniture should be banned from school spaces.

The maximum use can be made of available school and classroom spaces as pedagogic resources. In some areas, the walls of primary school classrooms

'Class size' is an important factor that influences the choice of desirable methods and practices that the teacher uses in the process of curriculum transaction. National and international experiences have shown that a ratio higher than 1:30 is not desirable at any stage of school education. Way back in 1966, the Kothari Commission Report had warned that large classes would do 'serious damage to the quality of teaching' and that 'in crowded classrooms, all talk of creative teaching ceases to have any significance' (1966: p. 413 and 415).

till the height of about 4 feet have been painted black so that they serve as a free slate and drawing board for children. In some schools geometric designs that can be used for activities are painted on the floor. A corner of the room may be used to organise learning materials, to keep some appropriate story books, puzzle or riddle cards, and other self-access learning materials. When some children finish their assigned lessons befor the allotted time, they should feel free to come and pick up something from this corner to occupy themselves.

Children can be encouraged to participate in activities to make the school and classroom attractive for study, work and play. Most government schools have the healthy practice of giving children the charge of cleaning, thereby encouraging the inclusion of work into the routine of the school. But it is also distressing to note that there are schools where it is the girls or children from the lower the castes who are expected to do this work. In elite schools, children do not take on any such responsibilities, and cleaning activities are often meted out as 'punishments' for misdemeanours. Such practices stem from and reinforce cultural norms of the division of labour, and the association of distasteful jobs with traditional hereditary occupations of lower – caste groups. As schools are public spaces that must be informed by the values of equality as well as respect for labour/work of all kinds, it is important that teachers consciously avoid distributing tasks on the basis of cultural notions. On the other hand, keeping the classroom clean and putting things in place are important curricular experiences through which children learn to take individual and collective responsibility and to keep their classrooms and schools as attractive as possible. The understanding of being part of a larger collective, and the abilities needed to work within a collective, can be internalised in children in a variety of ways as they interact in groups within the classroom and the school.

In fact, the structuring of infrastructural facilities is essential for paving the way for creating a learner - friendly and activity-centric context. Setting norms and standards, especially relating to space, building and furniture, would help in fostering a discerning sense of quality.

- **Space** Norms are related to age, to group size, the teacher – child ratio, and to the nature of activities to be carried out.
- **Building** Building materials, architectural styles and craftsmanship are also location-specific and culture-specific in relation to climate, ecology, and availability, while safety and hygiene are non-negotiable. Low-cost designs for toilets are plentiful, and the same standardised school building need not be found across India.
- **Furniture** Norms must be related to age and the nature of the activities, with preference given to the easily relocated, except in case of laboratories and other specialised spaces.
- **Equipment** Lists of essential and desirable equipment (including books) should be specified, emphasising the use of local materials and products, which may be culture specific, low cost, and easily available.
- **Time** The need for location and age-specific norms also apply to time tables and seasonal calendars.

4.2 NURTURING AN ENABLING ENVIRONMENT

As public spaces, schools must be marked by the values of equality, social justice and respect for diversity, as well as of the dignity and rights of children. These values must be consciously made part of the perspective of the school and form the foundation of school practice. An enabling learning environment is one where

'On an average, teachers and children spend around 6 hours a day, and over 1,000 hours a year, in school. The physical environment in which they go about their tasks must be congenial, providing a level of comfort, and offering a pleasant space to work in. For this, the school must have minimum facilities that include essential furniture, basic amenities (toilets, drinking water) and so on. There are a large number of schools in rural areas, especially in SC *and tribal habitations, as well as in poor urban settlements, which have not been able to provide these basic facilities, although there are official norms for the same. Teachers, including the headmaster and the Village Education Committee or School Development and Monitoring Committee, need to be aware of the official norms of the state regarding the essential physical infrastructure and amenities. In places where they are not adequate, efforts need to be made for their provision so that the school routine proceeds with minimum discomfort. If the official response is not forthcoming or is delayed, local communities should lobby for these. With their involvement and willingness to make this effort fruitful, the school would assist teachers in concentrating on academic work.*

children feel secure, where there is absence of fear, and which is governed by relationships of equality and equity. Often this does not require any special effort on the part of the teacher, except to practise equality and not discriminate among children. Teachers should also nurture their classroom spaces as places where children can ask questions freely, engaging in a dialogue with the teacher as well as their peers, during an ongoing lesson. Unless they can share their related experiences, clarify their doubts and ask questions, they will not engage with learning. If, instead of ignoring children's comments or sealing their tongues with strict rules of silence and restrictions on the language to be used, teachers encourage children to talk, they would find that the classroom is a more lively place and that teaching is not predictable and boring, but rather an adventure of interacting minds. Such an environment will facilitate the self-confidence and self-esteem of learners of all ages; it will also go a long way in improving the quality of learning itself.

Teachers and children are part of the larger society where identities based on membership of caste, gender, religious and linguistic group, as well as economic status inform social interaction, though this varies in different social, cultural and regional contexts. SC and *ST* communities, members of minority groups, and women are usually placed in situations of disadvantage because of their identities, and are denied equal access to valued resources in society and participation in different institutions. Research on school processes suggests that identities of children continue to influence their treatment within schools, thereby denying them meaningful and equal opportunities to learn. As part of the experience of schooling, children also receive implicit messages through interpersonal relations, teacher attitudes, and norms and values that are part of the culture of the school. These often reinforce notions of purity and pollution in relation to social hierarchies, desirable qualities of 'masculinity' and 'feminity', and privilege in certain ways of living, mainly that of the urban middle class, while rendering all others invisible. Children belonging to SC and ST groups, and other socially discriminated against groups such as sex workers and parents with HIV, are often subjected to demeaning treatment in the classroom, not only by teachers but also by their peers. Girls are

often subject to stereotypical expectations based on notions of their future roles as wives and mothers rather than enabling them to develop their capabilities and claim their rights. Children with disability often confront insensitive environments where their needs are completely ignored. Schools must be conscious of the importance of creating equitable classroom environments in which students are not subjected to unfair treatment and denied opportunities on the basis of their sex or membership of a caste, tribe or minority group. On the other hand, the culture of the school must be one that highlights the students, identities as 'learners' and creates an environment that enhances the potential and interests of each child.

4.3 PARTICIPATION OF ALL CHILDREN

Participation by itself has little meaning. It is the ideological framework surrounding participation that defines it and gives it a political construct. For example, work participation within an authoritarian frame would give participation a very different form from participation within a democracy. Today, the participation of 'civil society' has become part of the rhetoric in developmental circles, but the nature of that civil society and the object of that participation have been moulded by a specific interpretation of what it means to be a citizen. Today, civil society participation has come to mean NGO participation, and attempts to enable the participation of individual citizens, for example, in local governance is posing a major challenge.

India is one of the largest and oldest democracies in the world; this curriculum framework is built on an understanding of this foundation. Education defines the fabric of a nation, and has the capacity to provide each child a positive experience of democratic functioning. Like the texture, colour, strength, and nature of each thread that is woven into a tapestry, each Indian child can be enabled to not only participate in a democracy, but to also learn how to interact and form partnerships with others to preserve and enhance democracy. It is the quality and nature of the interrelationships among individuals that determines the socio-political fabric of our nation. However, children are often socialised in to discriminatory practices. Children and adults learn from what they experience at home, the community and the world around them. It is important to recognise that adults socialise children within the dominant socio-cultural paradigm. This paradigm would include the role models that children see the mass media including television. This experience conditions their perceptions of caste and class, gender, democracy and justice. These perceptions, if and when reinforced by repeated experiences of the same kind, are converted into values. At a community level, when a group of people have the same experience and therefore share the same values, these values get converted into culture, and sometimes even ideology. This is a spiral, and each time the cycle is repeated the values and culture get reinforced unless there is a variation in the experience. The counter - experience needs to be strong and real enough to transform the earlier perceptions. Children cannot wake up one fine morning when they are 18 and know how to participate in, preserve and enhance a democracy, especially if they have had no prior personal or even second - hand experience of it, nor any role models to learn from.

The participation of children is a means to a much larger end, that of preserving and adding a new vibrancy to our culture of egalitarianism, democracy, secularism and equality. These values can be best realised through an integrated and well-designed curriculum that enables children's participation. The existing environment of unhealthy competition in schools

promotes values that are the antithesis of the values enshrined in our Constitution. A positive 'experience' of democracy and democratic participation must be provided both within and outside the school. This experience must actively engage children and young people in ways that encourage values of inclusion, eventually leading the way to the realisation of the vision of a participatory democracy.

Enabling democratic participation is also a means of empowering the weak and the marginalised. If India is to realise her dream of a nation based on egalitarianism, democracy and secularism, where all her citizens enjoy justice, liberty, equality and fraternity, enabling the participation of children would be the most fundamental step in this process. Enabling learning through participation in the life of a community and the nation at large is crucial to the success of schooling. The failure to provide this will result in the failure of the system, and hence needs to be treated as the utmost priority. It is not only as essential as the teaching of mathematics and science, but takes on even greater importance as an indispensable component of all disciplines. It is a running theme, and has to be integrated into all learning processes and arenas, and given top priority in the development of all curricula and syllabi.

4.3.1 Children's Rights

India has signed the Convention on the Rights of the Child (CRC). The three most important principles of this Convention are the rights to participation, to association or the right to organisation, and the right to information. These are essential rights if children and youth are to realise all their other rights. CRC does not concern itself only with the protection of children and the delivery or provision of services and programmes, but also ensures that children have the right to determine the quality and nature of these services and programmes. Moreover, all the articles of the CRC have to be seen within the overarching principle, that

- √ *Inclusive education is about embracing all.*
- √ *Disability is a social responsibility — accept it.*
- √ *No selection procedures to be adopted for denying admission to learners with disabilities.*
- √ *Children do not fail, they only indicate failure of the school.*
- √ *Accept difference… celebrate diversity.*
- √ *Inclusion is not confined to the disabled. It also means non-exclusion.*
- √ *Learn human rights … conquer human wrongs.*
- √ *Handicap is a social construct, deconstruct handicap.*
- √ *Make provisions — not restrictions; adjust to the needs of the child.*
- √ *Remove physical, social and attitudinal barriers.*
- √ *Partnership is our strength such as*

  school – community; school – teachers; teachers – teachers; teachers – children; children – children; teachers – parents; school systems and outside systems.
- √ *All good practices of teaching are practices of inclusion.*
- √ *Learning together is beneficial for every child.*
- √ *Support services are essential services.*
- √ *If you want to teach, learn from the child. Identify strengths not limitations.*
- √ *Inculcate mutual respect and inter-dependence.*

of upholding and preserving the best interests of children.

Although CRC guarantees children the right to express their views freely in all matters affecting them, and to exercise freedom of expression, children are frequently denied the opportunity to participate in decision-making processes and activities that effect their lives and futures. The right to participation also depends on the realisation of other primary rights such as access to information, the freedom of association, and the right to formulate opinions free from influence and coercion. The principle of participation should be integrated into all areas of concern for children.

In reality, social, political and economic structures are still very much hierarchical; children and youth are the most marginalised sections of society; their effective participation depends largely on the extent to which they are given the opportunity to organise themselves. Coming together gives them visibility, strength and a collective voice. The participation of individual, 'hand-picked' children or youth is fraught with discrimination, and is ineffective because such 'representatives' represent no one but themselves; it excludes the less vocal and less visible; and it gives more room for manipulation.

On the other hand, the organised participation of children and youth, especially the more disadvantaged children, gives children strength, access to more information, confidence, an identity and ownership. Individual children or youth representing such groups voice the views and aspirations of the collective. Their coming together also enables them to find collective ways to solve problems. However, what needs to be ensured is that all children and youth have an equal right to participate in the development of this collective voice.

4.3.2. Policy of Inclusion

A policy of inclusion needs to be implemented in all schools and throughout our education system. The participation of all children needs to be ensured in all spheres of their life in and outside the school. Schools need to become centres that prepare children for life and ensure that all children, especially the differently abled, children from marginalised sections, and children in difficult circumstances get the maximum benefit of this critical area of education. Opportunities to display talents and share these with peers are powerful tools in nurturing motivation and involvement among children. In our schools we tend to select some children over and over again. While this small group benefits from these opportunities, becoming more self - confident and visible in the school, other children experience repeated disappointment and progress through school with a constant longing for recognition and peer approval. Excellence and ability may be singled out for appreciation, but at the same time opportunities need to be given to all children and their specific abilities need to be recognised and appreciated.

This includes children with disabilities, who may need assistance or more time to complete their assigned tasks. It would be even better if, while planning for such activities, the teacher discusses them with all the children in the class, and ensures that each child is given an opportunity to contribute. When planning, therefore, teachers must pay special attention to ensuring the participation of all. This would become a marker of their effectiveness as teachers.

Excessive emphasis on competitiveness and individual achievement is beginning to mark many of our schools, especially private schools catering to the urban middle classes. Very often, as soon as children join, houses are allocated to them. Thereafter, almost every activity in the school is

counted for marks that go into house points, adding up to an end-of-the-year prize. Such 'house loyalties' seem to have the superficial effect of getting all children involved and excited about winning points for their houses, but also distorts educational aims, where excessive competitiveness promotes doing better than someone else as an aim, rather than excelling on one's own terms and for the satisfaction of doing something well. Often placed under the monitoring eye of other children, this system distorts social relations within schools, adversely affecting peer relations and undermining values such as cooperation and sensitivity to others. Teachers need to reflect on the extent to which they want the spirit of competition to enter into and permeate every aspect of school life—performing more of a function in regulating and disciplining than in nurturing learning and interest.

Schools also undermine the diverse capabilities and talents of children by categorising them very early, on narrow cognitive criteria. Instead of relating to each child as an individual, early in their lives children are placed on cognitive berths in the classroom: the 'stars', the average, the below - average, and the 'failures'. Most often they never have a chance to get off their berth by themselves. The demonising effect of such labelling is devastating on children. Schools go to absurd lengths to make children internalise these labels, through verbal name calling such as 'dullard', segregating them in seating arrangements, and even creating markers that visually divide children into achievers and those who are unable to perform. The fear of not having the right answer keeps many children silent in the classroom, thus denying them an equal opportunity to participate and learn. Equally paralysed by the fear of failure are the so-called achievers, who lose their capacity to try out new things arising from the fear of failure, doing less well in examinations, and of losing their ranks. It is important to allow making errors and mistakes to remain an integral part of the learning process and remove the fear of not achieving 'full marks'. The school needs to send out a strong signal to the community, parents who pressurise children from an early age to be perfectionists. Instead of spending time in tuitions or at home learning the 'perfect answers', parents need to encourage their children to spend their time reading storybooks, playing and doing a reasonable amount of homework and revision. Instead of looking for courses on stress management for their pupils, school heads and school managements need to de-stress their curricula, and advise parents to de-stress children's life outside the school.

Schools that emphasise intense competitiveness must not be treated as examples by others, including state-run schools. The ideal of common schooling advocated by the Kothari Commission four decades ago continues to be valid as it reflects the values enshrined in our Constitution. Schools will succeed in inculcating these values only if they create an ethos in which every child feels happy and relaxed. This ideal is even more relevant now because education has become a fundamental right, which implies that millions of first-generation learners are being enrolled in schools . To retain them, the system — including its private sector — must recognise that there are many children that no single norm of capacity, personality or aspiration can serve in the emerging scenario. School administrators and teachers should also realise that when boys and girls from different socio-economic and cultural backgrounds and different levels of ability study together, the classroom ethos is enriched and becomes more inspiring.

4.4 DISCIPLINE AND PARTICIPATORY MANAGEMENT

The pupils 'own' the school as much as the teachers and headmasters, especially in government schools. There is a relationship of interdependency between the teacher and the pupils, especially in this era where learning transaction is based on access to information, and knowledge creation is based on a foundation of resources of which the teacher is the pivot. One cannot function without the other. Educational transaction has to shift from the benefactor (teacher) and the beneficiary (pupil) to a motivator and facilitator and learner, all of whom have rights and responsibilities in ensuring that educational transaction takes place.

At present, school rules, norms and conventions define permitted 'good' and 'proper' behaviour for individual and groups of students. Maintaining discipline in schools is usually the prerogative of teachers and adults in positions of authority (often the sports master and administrators). Frequently, they also induct children as 'monitors' and 'prefects' and delegate the responsibility of maintaining 'order' and ensuring control. Punishment and reward play an important role in this. Those who implement rarely question the rules, or the implications that ensuring compliance may have for children's overall development, self-esteem and also their interest in learning. Forms of disciplining such as corporal punishment and, verbal and non-verbal abuse of children, continue to feature in many schools, and are used to humiliate children in front of their peers. Yet many teachers and even parents still believe that such punishment is important, unaware of the immediate and long-term detrimental effects of these practices. It is important for teachers to reflect on the rationale that underlies the rules and conventions that govern schools, and whether these are consistent with our aims of education. For instance, rules such as the length of socks and the whiteness of sports shoes are of no educationally defensible importance. Rules regarding maintaining silence in classrooms, answering 'one at a time', and answering only if you know the right answer, can undermine the values of equality and equal opportunity. Such rules may also discourage processes that are integral to children's learning, the development of a sense of community among peers, though they may make the class 'easy to manage' for the teacher and facilitate 'covering the syllabus'.

Inculcating the value/habit of self-discipline is important for the systematic pursuit of learning and the development of the child's interests and potential. Discipline must enable the performance of, and be conducive to, the task at hand. It should enable freedom, choice and autonomy for both teacher and child. It is necessary to involve children themselves in evolving rules, so that they understand the rationale behind a rule, and feel a sense of responsibility in ensuring that it is followed. In this way they would also learn the process of setting codes of self-governance and the skills required to participate in decision making and democratic functioning. Similarly, the children themselves could also evolve mechanisms for conflict resolution between teachers and students, and among students. The teacher should ensure that there are as few rules as possible, and that only rules that can be reasonably followed are created. It does no one any good to humiliate children for breaking rules, particularly when there are good reasons for the rule being broken. For instance, 'noisy classrooms' are frowned upon by teachers as well as headmasters, but it is possible that rather than the noise being evidence of the teacher not being in control, it may be evidence of a lively and participatory class.

Similarly, headmasters can be unreasonably strict about punctuality. A child who is late for an examination on account of a traffic jam must not be penalised, and yet we find such rules being imposed in the name of higher values. Unreasonableness on the part of authorities in such matters can demoralise children, their parents, and also teachers. It may help to remember to first ask a child why he or she broke a rule, to listen to what the child says, and act accordingly. It is befitting a school head or teacher to exercise authority rather than power. Arbitrariness and unreasonableness are characteristics of power, and are feared, not respected. Systems for the participatory management of the school by children and schoolteachers and administrators need to be evolved. Children should be encouraged to elect their own representatives to children's councils, and similarly the teachers and administrators of a given school need to be organised themselves, so also the parents.

4.5 Space for Parents and the Community

The school is a structured space for guided learning, but the process of constructing knowledge is a continuous one, which goes on even outside the school. If learning is continuous, and takes place in arenas other than the school, such as home, the workplace, the community, etc., then school assignments or homework should be planned differently. It need not depend on parents reinforcing what the school has already done. It could set different kinds of activities for children to do, on their own or with their parents. This could also provide opportunities for parents to understand a little more about what their child is learning in the school and give children the initial impetus to explore and recognise the world outside the school as an arena for learning.

Schools could also invite the community into their premises, and give the larger world outside a role in influencing the curricular process. Parents and community members could come into the school as resource persons to share their knowledge and experiences in relation to a particular topic being studied. For example, for a lesson on machines, local mechanics could talk about sharing their experiences on repairing and also talk about how they learnt to repair vehicles.

1. The participation of the community in the child's world of education and learning should allow for the community to:
   a. Transfer oral history (dealing with folklore, migration, environmental degradation, traders, settlers, etc.) and traditional knowledge (sowing and harvesting, monsoons, processes related to traditional crafts, etc.) to children, while the school encourages critical reflection wherever it is required
   b. Influence the content of subjects and add local, practical, and appropriate examples
   c. Support children in their exploration and creation of knowledge and information
   d. Support children in their practise of democracy through their participation in information generation, planning, monitoring and evaluation with local governments and schools
   e. Monitor the realisation of children's rights as well as violations of these rights
   f. Participate in addressing the constraints faced by children
   g. Participate in setting criteria for vocational training
   h. Enable the village to become a learning environment for children realising the concept of the 'village as a school'.

Similarly, while helping children to use their home language and make a transition to the school language,

teachers may seek inputs from local language speakers to facilitate communication in the mother tongue(s), teaching of languages and creating material. The choice would depend upon the particular curricular plan adopted and the kinds of expertise that are available and accessible. The school must explore opportunities for active engagement by parents and the community in the process of learning. This relationship will help in sharing the content and pedagogy of institutionalised learning.

All schools need to look for ways in which parental participation and involvement can be encouraged and sustained. Many schools do not treat parents' questions and concerns regarding the activities of the school as valid questions. Frequently, private schools turn parents into mere consumers and ask them to take away their wards if they do not like something that the school is doing. Others treat poor parents as not having any legitimate stand when they come to make enquiries about their wards. Both types of attitudes are disrespectful of parents and their legitimate concern for their children.

Overall, in order to make the school environment supportive of children, and to strengthen the relationship of the school with parents and the local community, there are institutionalised structures such as parent-teacher associations, local - level committees, and also alumni associations in some schools. In events held to celebrate national festivals and other occasions such as cultural day and sports day, most schools invite parents to participate. By inviting alumni and local residents also, the importance of the school as a community site can increase. Community involvement can also be sought for maintaining the school and its facilities. There are examples of local contributions for building school boundary walls, augmenting facilities, and so on. However, community participation must not mean the economic burdening of poor families. On the other hand, there can be an understanding that school space can be shared with the community for local events and that there will be some collective responsibility in maintaining its premises.

4.6 Curriculum Sites and Learning Resources

4.6.1 Texts and Books

Popular perception treats the textbook as the prime site for curriculum designing. Though curriculum planning is a much wider process, curriculum reform seldom goes beyond changing the textbook. **Improved textbooks** that are carefully written and designed, professionally edited and tested, offering not merely factual information but also interactive spaces for children are important. But curricular reform can go much farther if textbooks are accompanied by several other kinds of materials. Subject **dictionaries,** for instance, can relieve the main textbook from becoming encyclopaedic, burdened by carrying definitions of technical terms, and instead allow the teacher to focus on understanding concepts. The triangular relationship between high-speed classroom teaching, heavy homework and private tuition, which is a major source of stress, can be weakened if textbook writers focus on elaboration of concepts, activities, spaces for wondering about problems, exercises encouraging reflective thinking and small-group work, leaving the definition of technical terms to a subject dictionary.

Supplementary books, workbooks, and extra reading come next. In certain subjects, such as languages, the importance of such material needs no fresh recognition, but the concept of such material does call for fresh thinking. Current textbooks contain uninteresting content covering different genres, and workbooks simply repeat exercises of the type already

found in textbooks. In mathematics, and the natural and social sciences, such supplementary materials still need to be developed. Such books could draw children's attention away from the text to the world around them. Indeed, for subjects like art, workbooks may form the main classroom material. There are fine examples of such materials produced for the study of the environment, introducing children to the observation of trees, birds and the natural habitat. Such resources need to become available to the teacher and for use in the classroom.

Atlases have a similar role to play in enriching the child's understanding of the earth, both as a natural and as a human habitat. Atlases of stars, flora and fauna, people and life patterns, history and culture, etc. can greatly enlarge the scope of geography, history and economics at all levels. Posters on these areas of knowledge, as well as other matters of concern on which general awareness needs to be promoted, can also enhance learning. Some of these concerns include gender bias, inclusion of children with special needs, and Constitutional values. Such material could be available in a resource library and at the cluster level to be borrowed by schools for use, or they could be placed in the school library, or made available by teachers.

Manuals and resources for teachers are just as important as textbooks. Any move to introduce a new set of textbooks or a new kind of textbook should include the preparation of handbooks for teachers. These handbooks should reach principals and teachers before the new textbooks do. Teachers' handbooks can be designed in many different ways. They need not cover the content of the textbook chapter-wise, though that can be one of the approaches. Other formats can be equally valid: offering a critique of established methods and suggesting new ones, and including lists of resource materials, audio and video materials and sites on the Internet. These would provide tips for teachers, which they could use for lesson planning. Such source books need to be available during in - service training of teachers and during meetings when they plan their teaching units.

Vertically organised group classrooms (multigrade or multiability) require a shift away from textbooks designed for monograde classrooms, which assume that all children are being addressed by the teacher together and that they are all at the same stage and are all expected to do the same thing. Instead, there is a need for alternative types of materials to be made available to teachers as a basis of planning lessons and units:

- Thematic lesson with a variety of exercises and activities at different levels for different groups.
- Graded self - access materials that children can engage with on their own with minimum scaffolding from the teacher, allowing them to work on their own or with other children.
- Whole - group activity plans, say, storytelling or performing a small drama, based on which children can do different activities. For example, all children from Classes I to V may enact the folk story of the rabbit and the lion together, and after this Groups I and II may work with flashcards with the names of various animals; Group III and IV may make a series of drawings and then write out the story against each drawing, working in small groups; and Group V may rewrite the story, suggesting alternative endings to it. Without the support of appropriate materials, most teachers find themselves trying to juggle monograde class groups, with the result that for the majority of children, time on the task becomes very low.

4.6.2 Libraries

School libraries have been a subject of policy recommendations for a long time, but a functioning library in the school continues to be a rarity. It is important that future planning treats the library as an essential component of the school at all levels. Both teachers and children need to be motivated and trained to use the library as a resource for learning, pleasure, and concentration. The school library should be conceptualised as an intellectual space where teachers, children and members of the community can expect to find the means to deepen their knowledge and imagination. A system of cataloguing books and other materials available in the library needs to be developed so that children can become self-reliant library users. Apart from books and magazines, a school library should provide access to the new information technology to enable children and teachers to connect with the wider world. In the initial stages of planning, block-level or cluster-level libraries can be set up. In the future, India must move towards equipping every school, irrespective of its level, with a library. In many parts of the country, community libraries are functioning in rural areas, and government libraries exist in many district headquarters. Futuristic planning would require the amalgamation of such structures in a school library network in order to maximise the use of resources. The Raja Ram Mohan Roy Library Foundation can be given additional resources to act as a nodal agency for conceptualising a library network for schools and for monitoring it after it has been created.

In the day-to-day life of a school, the library can serve many different kinds of purposes. Restricting the use of the library to one period a week seldom allows children to cultivate a taste for reading. Facilities are to be provided to allow children to borrow books.

Libraries

One period a week to be devoted to library reading. During this time, children sit and read silently in the library. They return the books borrowed the previous week and borrow new ones.

If there is no library room, the teacher can bring out books appropriate to the age group and allow children to choose from the set. It is important to let the child choose rather than having the teacher distribute the books.

Library books can be brought into the language class.

For class projects, children can be asked to look up a reference in the library.

Children can be asked to write about the book they have read that week during the language class.

Children can be asked to share a story they have read with the other children in class.

The school library should be kept open during vacations.

Training of teachers in library management and use is required to meet the demands of this situation. Where the size of the school building permits a separate room for the library, it is important to pay attention to creating a positive ethos in this space by providing good lighting and seating arrangements. It should even be possible for a teacher to conduct a class in the library by drawing upon its resources. It could also serve as a place for holding discussions, watching a craftsman from the community giving a demonstration, or listening to a storyteller. Creating such resource libraries to support teachers at the cluster and block levels will complement and strengthen curriculum renewal. Each block could

specialise in a subject area so that together there are adequate resources in the district.

4.6.3 Educational Technology

The significance of Educational Technology (ET) as a site for curriculum planning has been widely recognised, but detailed guidelines and strategies for its educationally optimum use have not yet been worked out. Generally, technology has been used as a medium to disseminate information, and as a way of addressing the scarcity of good teachers—usually the consequence of poor recruitment policies. ET, which is used to redress the problem of quality of teaching, can only exacerbate the disillusionment of teachers with teaching. If ET is to become a means of enhancing curricular reform, it must treat the majority of teachers and children not merely as consumers but also as active producers. There must be widespread consultation regarding use during development and implementation. ET facilities need to be used at all levels of schools — cluster and block resource centres, district, state and national level institutions — in order to provide hands-on experience in using ET. Such experiences provided to children, teachers and teacher educators, could include something as simple as the audio-recording of an interview with a village elder, to making a video film or a video game. Providing children more direct access to multimedia equipment and Information Communication Technology (ICT), and allowing them to mix and make their own productions and to present their own experiences, could provide them with new opportunities to explore their own creative imagination.

For primary school children, video simulations and demonstrations cannot substitute for hands-on experiences and learning.

Such an experience of ET production, rather than only watching and listening to programmes in a passive way, can lay the foundation for far better utilisation of the country's enormous ET facilities. Interactive, Net - enabled computers, rather than only CD-based computer usage, would facilitate a meaningful integration of computers and enhance the school curriculum in rural and remote areas by increasing connectivity and enhancing access to ideas and information. It is such two-way interactivity rather than one-way reception that would make technology educational.

Rather than trying to reproduce and mimic classroom situations, or teaching the textbook content, or animating lab experiments, ET could realise far better potential if topics are taken up but developed into non-didactic explorations, leaving learners free to relate to the knowledge web progressively, and learn at their own levels of interest. Such access to knowledge in regional languages is still very limited, and is one of the main reasons for the persistent and growing divide between learners from urban and rural schools, and learners from regional - language and English - medium schools. The potential of such encyclopaedias and documentaries for children is still underdeveloped. Materials such as textbooks, workbooks and handbooks for teachers can be designed with the awareness of existing stocks of good-quality audio or video material and sites where extra resources are available on the Net. Classics of cinema need to be made accessible through such measures. For instance, a child studying about village life should have easy access to Satyajit Ray's classic, *Pather Panchali,* either as a CD to be borrowed from the CRC or to be viewed on a nationally managed website. Future textbooks need to be conceptualised

and designed in ways that might integrate knowledge in different subjects and experiences, thus facilitating the assimilation of knowledge. For instance, a middle - school textbook that discusses the history of Rajasthan and mentions Meera should be able to offer the text of a *bhajan* composed by her, and also refer to a source where that *bhajan* has been archived, so that children can listen to M.S. Subbulakshmi singing it.

Integration of knowledge and experience along these lines would take away the sense of burden and boredom that our present-day education induces. In science and mathematics, and in teaching children with disabilities, the potential of ET, including IT, is widely appreciated. It is important to realise this potential in achieving curricular goals, with more age-specific planning on the use of ET. Governments and other agencies responsible for financial planning need to take this fuller range of ET's demands and benefits.

4.6.4 Tools and Laboratories

Equipping the school with tools that are necessary for art and craft work is an imperative. These curricular areas can contribute to achieving the aim of making the school space a creative space, only if we can mindfully plan for resources. The heritage crafts require, in their weekly or fortnightly cycles of routine, tools and instruments such as looms, lathes, scissors and embroidery frames, depending on the craft. It is important not to let this sector of curricular planning suffer from gender or caste bias, or else one of its key promises will be lost, namely, the promise of promoting a culture of active engagement with one's material and human environment, with imagination and cooperation. The same is true for the arts, which in addition to being integrated into other curricular areas would also need specialised materials and tools. The opportunity to handle tools and acquire dexterity in using them, and also learning to take care of and maintain them, are invaluable experiences for all children. Investment in training of the child's senses and faculties with the help of the arts plays a vital role in strengthening literacy and developing a culture of peace.

Schools, particularly those in rural areas, are poorly equipped with science labs, or equipment for mathematical activities. The absence of such facilities drastically narrows subject options for children, denying them equal opportunities for learning and future life chances. It is hence important that resources are made available for laboratories with adequate facilities in schools. While elementary schools can benefit from a science and mathematics corner, secondary and higher secondary schools require well-equipped laboratories.

4.6.5 Other Sites and Spaces

Sites of curriculum that are physically located outside the school premises are just as important as the ones discussed so far. These are sites like local monuments and museums, natural physical features such as rivers and hills, everyday spaces such as marketplaces and post offices. The teacher's ability to plan the school schedule in a manner that permits imaginative use of such resources directly affects the quality of education that children might receive at a school. Restriction of classroom activities to what is written in the textbook implies a serious impediment to the growth of children's interests and capabilities. Quite a few such impediments result from the rigid observation of the school's daily or annual routine. The night sky is not available for the study of stars simply because the school does not open its gates or allow access to its roof at night. Watching the setting sun or observing the arrival of the monsoon in June fall outside the school's timetable. Exchange visits between schools in different parts of the country, and even the neighbouring SAARC

countries, could become important ways of promoting mutual understanding.

Teachers and educational administrators would have to join hands to release the system from such rigidities. In addition, syllabus makers and the writers of textbooks and teachers, handbooks would also have to get into the details of the planning of learning activities, which would widen the scope of the curriculum. This would require breaking away from the mindset that excursions and activities related to the arts and crafts are 'extra-curricular'.

Any experience that the teacher regards as necessary for the child's development is curricular, irrespective of how or where it is organised. This reconceptualisation of the curriculum can be accomplished only if it receives the understanding, support and acceptance of official authorities.

4.6.6 Need for Plurality and Alternative Materials

The pluralistic and diverse nature of Indian society definitely makes a strong case for preparing a variety of not only textbooks but also other materials, so as to promote children's creativity, participation and interest, thereby enhancing their learning. No one textbook can cater to the diverse needs of different groups of students. Further, the same content/ concept can be taught in different ways. Schools, government or private, could have the choice of textbooks to follow for different subjects. Boards or textbook bureaus could consider developing more than one series of books, or even endorsing books published by other publishers, and allowing schools to choose from a range. As far back as 1953, the Report of the Secondary Education Commission made a number of recommendations for removing the defects in textbooks, wherein it was pointed out that: "No single textbook should be prescribed for any subject of study, but a reasonable number of books which satisfy the standards laid down should be recommended, leaving the choice to the school concerned". In its section on the Essentials for Curricula Development, the Kothari Commission Report emphasised that the curricular revision had been of an ad-hoc character and that the curriculum is prepared at the state level and prescribed uniformly for all schools. Such procedures undermine the agency of teachers and head teachers, and render the spirit of exploration and innovation impossible. The Report categorically stated that basic to the success of any attempt at curriculum improvement is the preparation of suitable textbooks, teachers, guides and other kinds of learning resources.

4.6.7 Organising and Pooling Resources

Teaching aids and other materials, as well as books, toys and games, help make school interesting for children. In some states of the country, good use has been made of the funding assistance through DPEP and other programmes for acquiring and developing teaching-learning materials. A lot of ready-made materials do exist, and teachers, cluster and block - level resource persons need to become better acquainted with the range of materials available and ways of using them. There are also many new kinds of printed materials for teachers and children being produced by NGOs and small entrepreneurs. In addition, there are locally available materials that cost little but which are very useful for keeping in a classroom, especially in the primary school grads. Teachers need to explore various types of raw materials that can be used to make teaching aids that will last

year after year, so that the precious time they invest in making these things is put to good use. Styrofoam and cardboard are neither strong enough nor attractive for this purpose. Other materials such as rexine, rubber and cloth are interesting alternatives.

Other kinds of resource materials, such as maps and picture folders, and specific equipments could be shared among schools if they are placed in the cluster centre, which can then serve as a resource library so that for the period of teaching the teacher borrows materials from the cluster and thereafter returns them to the cluster to enable some other teachers to borrow them. In this way, the resources gathered by one teacher can also be utilised by others, and it would become possible to have multiple sets necessary for the whole class to use.

The availability of such resources depends on the funds available and the member of schools that need assistance. How can the school build such resources? Some government programmes, for instance, Operation Blackboard, have laid down norms for the minimum materials that should be available in each Primary and Upper Primary school. Similarly, there are new schemes that allow for cycles and toys to be purchased for a cluster of schools. Schools could benefit from these opportunities, and also explore the possibilities that are available at the local level for augmenting their teaching-learning and play material. There is a growing emphasis on Educational Technology for 'effective' learning. Some schools are now being equipped with computers, and in some areas radio and TV-based instruction is being introduced.

Ultimately, the use of such materials requires planning if it is to be effective and become a part of the overall plan to enhance participation and understanding. Teachers would need to prepare and plan if the materials he/she introduces into the classroom are for the purpose of demonstration. If an activity is being planned, then there must be enough sets for everyone in the class to use, individually or in small groups. If only one child is able to handle materials while all the others watch, it is a waste of learning time.

Laboratories have always been talked about as a part of science teaching in middle and high school. Yet these are still not available on the scale required. As a part of the effort to provide all children with the necessary hands - on experience of equipment and experiments given in their science curriculum, at least at the cluster level, the resource centre may serve as a clusterlab. Schools in the cluster could plan their timetable so that for half a day, once a week, their science lab class is held at the cluster - level lab. Craft labs too could be developed at least at the cluster or block levels in order to facilitate access to better equipment.

In engendering a culture of learning, not only the classroom but also in the space of the school itself and the world outside, the school could become the landscape in which a range of activities are organised. Teachers can devise activities, projects and studies, both drawing from textbooks and going beyond them, to encourage children to explore, investigate and construct knowledge.

4.7 TIME

Earlier documents have all included a section on recommendations on instructional time. Important concerns that we endorse from earlier documents include the need for the system to ensure that the total number of instructional days are not compromised, and that the total number of days for the curriculum should be 200 days as recommended in NCF-1988. Within this, we suggest ways in which we can work

out possibilities and methods for enriching the total time spent by each child in school from the point of view of learning.

The school annual calendar is currently decided at the state level. Several suggestions have been made in the past that the annual calendar could be planned at a more decentralised level, so that it is closer to the calendar of local activities and climate/weather. The plan for such calendars could be decentralised to the district level, and decided in consultation with the *zilla panchayats*.

Considerations for making any required changes could be based on local weather conditions. For example, where monsoons are very heavy and areas are prone to flooding, it is better for schools to remain closed and have a vacation period at that time. Parents in some areas ask schools to function during summer months as it is too hot to go out even to play. There are also areas where parents would prefer that the vacation coincides with at the time of harvest so that children can participate in the family occupation. Such adjustments would permit children to learn from the world in which they live which by acquiring important lifeskills and attitudes, instead of forgoing their lives in the local community and becoming alienated from it for the sake of attending school. Local holidays could be decided at the block level. The scheduling of various school events would need to be planned by all school faculty together, along with inputs from the village/ school education committee. Thematic learning across the school grades and excursions would also need to be planned in advance.

Needless to say, we need to safeguard against the misuse of such flexibility. Not all communities are benign spaces for children. It would go against the educational aims of the school if the community takes advantage of such flexibility to perpetuate cultural practices that are discriminatory or stereotype children along the lines of gender, religion or caste. It also could lend itself to children getting drawn into child labour. Children have a right to leisure and to play, and have time for themselves. Some local traditions and cultures are supportive of such a childhood, others less so. Often girls are burdened from an early age with domestic chores. Increasingly children are under great pressure to study, and are

The concept of ***time on task*** *is an essential reckoner for taking stock of the total time that children spend actively on learning. This would include time spent on listening, reading, writing, doing activities, discussing, etc. It would not include waiting for one's turn, copying from the board or revising. Particularly in multigrade classes, planning and designing of learning activities for children need to ensure that children's time on task is maximised.*

Total study time *that is expected from students in both face-to-face and self - study or homework needs to be accounted for while planning the syllabus or course of study for students, especially as they go into higher grades.*

Total homework time

Primary: No homework up to Class II and two hours a week from Class III.

Middle school: One hour a day (about five to six hours a week).

Secondary and Higher Secondary: Two hours a day (about 10 to 12 hours a week). Teachers need to work together to plan and rationalise the amount of homework that they give children.

placed in tuition classes before and after school, and hence they get little time to play. Schools must engage with children's families and their communities in a continuous dialogue to argue for and protect these rights of children.

The **timings of the school day** could be decided at each school level, in consultation with the *gram panchayat*, keeping in mind issues such as how far children need to travel to get to school. This flexibility is suggested only in order to facilitate children's participation in school. While saying this, we strongly maintain that the time spent in school itself, and on learning in the school, cannot be in any way compromised or reduced below six hours a day (and three hours for the ECCE period). Where teachers and children travel to school from a far - off place, it would befit the overall societal concern for children if bus timings are changed to enable teachers and students to reach the school and leave at a convenient time, instead of compelling them to routinely come late and leave early.

The school day, week, month, term and year need to be planned for as a **mixture of routine and variation,** as children need a little of both, and the kinds of learning we would like them to experience have different requirements. We share some organisational ideas that could form the basis for planning and enriching children's time spent in school, and also some aspects that relate to institutional arrangements for the same.

In most schools, the day begins with a **morning assembly,** when the entire school gathers to do things together. This time can be used for reading the headlines of the morning newspaper, performing some physical exercises and singing the national anthem. Other activities could also be added, for example, singing together, or listening to a story, or inviting a person from the local community or an outside guest to speak to the children, or hold small events to mark some significant local or national happening. Classes that have undertaken some interesting projects could also use this time to share their work with the whole school. If not everyday, such longer morning assemblies could be planned once or twice a week. In composite schools, depending on the theme, a junior school assembly and a senior school assembly could be held separately. News headlines that are significant, for example, the bus journey to Muzaffarabad, could provide a theme for a special session on that day, and be woven into the curriculum.

Morning Assembly

The day begins with teachers and children getting the school and class rooms ready for the day ahead. Cleaning the rooms, including the toilets, putting up display boards in the classrooms, organising materials and getting equipment, all these activities conveys a sense of ownership among students and teachers and foster a sense of responsibility towards the material and space they use. This also gives them time to talk to each other and catch up on the events of the previous day. This reduces the need for such talk during class time.

During the general assembly, everybody sits together, not according to their classes or in lines, but younger ones in front and older ones behind. One day a week they listen to an inspiring story. On another day they listen to music, a guest talk, or share a moving experience, read out and discuss an interesting report from the newspaper. Then everyone goes to class.

In most documents, a **period** has been presented as a basic unit of 45 minutes of teaching-learning in the timetable. Frequently, however, this is compromised into 30 to 35 minutes, which cannot constitute a meaningful length to engage with learning. A period can, in general, serve as an organisational unit for many text-based lessons.

But there is also a need for the school timetable to allow for other kinds of longer periods lasting an hour, or one and a half hours (a double period), for other kinds of activities such as craft or art work, projects, and lab work. Such lengths of time are also essential for undertaking cross-subject integrated learning, and for effective group work. Needless to say, in a multigrade class situation, the teacher needs a more flexible way of planning for children's learning time in sessions that are teacher led, those that are self-directed, those in which two or more grades could be combined, etc. While certain subject areas such as language and mathematics need learning time everyday, others do not. The weekly time table could allow for variation from the regular routine but should be balanced over the week. It is essential to take stock of the time spent in learning different subject areas and to introduce corrections if the teacher finds that more or less time is being spent or is needed, than originally foreseen/planned.

4.8 Teacher's Autonomy and Professional Independence

Teacher autonomy is essential for ensuring a learning environment that addresses children's diverse needs. As much as the learner requires space, freedom, flexibility, and respect, the teacher also requires the same. Currently, the system of administrative hierarchies and control, examinations, and centralised planning for curriculum reform, all constrain the autonomy of the headmaster and teacher. Even when there is curricular freedom, teachers do not feel confident that they can exercise it without being taken to task by the administration for doing things differently. It is therefore essential to enable and support them in exercising choice. As much as the classroom needs to nurture a democratic, flexible and accepting culture, so also the school institution and the bureaucratic structure need to do the same. Not only should the teacher receive orders and information, but equally the voice of the teacher should be heard by those higher up, who often take decisions that affect the immediate classroom life and culture in the school. Relationships between teachers and their heads and principals must be informed by equality and mutual respect, and decision making must be on the basis of dialogue and discussion. The annual, monthly and weekly calendars of activities need to provide time for such staff interactions for reviewing and planing. There is a need to encourage an atmosphere that facilitates collaborative efforts among teachers. There must also be mechanisms for conflict resolution.

Often technologies such as radio and TV are introduced into their classrooms without consulting teachers on whether they would like to have these and what they would like these to do for them. Once these there in the classroom, teachers are expected to use them, when they have no control over what will be delivered, or how it will integrate with their own teaching plans.

4.8.1 Time for Reflection and Planning

- On a daily basis (at least 45 minutes) to review the day, make notes on children to follow up the next day, and organise materials for the next day's lessons (this is in addition to the

time that they may need to correct homework).

- On a weekly basis (at least two/three hours) to take stock of learning, to work out details of activities and projects proposed, and to plan a group of lessons (unit) for the coming week.
- On a monthly/term basis (minimum of one day) to review their own work, children's learning, and map the contours of the learning activities planned for the groups they teach.
- At the beginning and the end of the year, two or three days each need to be allocated to evolve an annual plan for the school, in which they locate activities such as local holidays, annual events (national events, sports days, cultural events) and days for parent-teacher meetings that would involve the whole school. They would also plan excursions and field trips for their class groups, and for any projects that two or more classes would do together. They would also be involved in activities of preparing the school and class environment, putting up and changing posters and displays, organising children's work, etc. Such planning time is also essential for the school to review its relationship with the community, and identify points of focused action in the year such as enrolment, retention, school attendance and school achievement.
- Current in-service training-related time allocation (compulsory 20 days per year) could be partly diverted towards making time available for such reviewing, reflecting and planning.

Topic plan for the week: Machines (middle school, inclusive Classes V-VI)

Class I: *Game. When I say the word, write down all the things that come to your mind. Then (pairs or groups) discuss the list. Categorise these machines based upon some similarities.*

Think of some other way of categorising these and reclassifying them. Children to volunteer to make charts of machines of different types, to collect pictures and/or make drawings and paste them.

Class II: *Write down as many questions about machines as you would like to find answers to. Check those to which you already know the answers as well as those that you don't.*

Teacher visits each child, and suggests to him/her how he/she can find answers by referring to particular books or other sources, including talking to people.

Children think about questions for homework: "Which is the 'best' machine you know? Give reasons why you think it is so good." This question is to be discussed at home with parents, siblings and friends.

Class III: *Children discuss their homework question. They continue to seek answers to the questions from students in Class III, and show their work to the teacher. Teacher also asks if anyone knows a poem about a machine, and if not, he/she teaches them*

(she must come prepared).

Class IV: *Now read the chapter on machines in the textbook. See what more we can learn about machines from it. Answer the questions that follow.*

Class V: *Children make a 'tipper truck' toy, following the instructions in a reference book. Materials have already been collected and are available in the classroom. Or the teacher can provide a list at the end of Class IV and ask the children to come prepared.*

Class VI: *Time to catch up and complete the work. Topic ends with the teacher asking children to put down any additional questions that they want to explore for themselves after the class.*

Extending this topic for children in inclusive Classes VII – VIII

Science: *Can anyone explain what a machine is? Do not give examples, but an explanation. Let's now refer to a dictionary, and write the meaning on the blackboard. Next let's check a science textbook or science dictionary. Compare the two meanings. Is there a difference? Which definition is easier to understand, or which do you think is more precise? Can we now also differentiate between a tool, an instrument and a machine?*

Social Studies: *Who would like to find out when the first printing press, telephone, bulb, automobile, radio/television, wheel-chair, hearing aid, cooking gas and stove, sewing machine, refrigerator, and computer were made, by whom, and in which country. Let's try to imagine, and later find out, how people lived before the invention of a particular machine or tool or instrument. What would it mean not to have that machine in everyday life? What could be used instead?*

Discussion topic: *Are there mre machines invented for work used by (i) the privileged sections or the underprivileged, (ii) women, or (iii) men. Explain why. Who uses machines more—men or women?*

English: *Essay topics: A machine that changed my life (hearing aid, wheel - chair or any other). Or the machine I would like to buy and why.*

Projects: *Machines that changed our lives—positive, negative. Machines that we have/don't have, and how they affect our lives in terms of time, ease/convenience, cost? OR Can you visualise how a machine (pick any) might be improved in the future? You can draw or describe, or design a machine for the future.*
OR What considerations go into designing a car, motorcycle, bullock cart, or wheelchair? How can its efficiency and aesthetic appeal be enhanced?

- Monthly meetings organised for teachers at the cluster level could be based on groups of teachers teaching similar subjects and grade levels, so that they can share ideas and plan teaching for the forthcoming month together.

5.1 Concern for Quality

5.2 Teacher Education for Curriculum Renewal

5.3 Examination Reforms

5.4 Work-centred Education

5.5 Innovation in Ideas and Practices

5.6 New Partnerships

Chapter 5: Systemic Reforms

The dimensions of the national framework for school curriculum that have been outlined in the preceding chapters are derived from related aims of education with a social conscience, focusing on learners who are actively engaged with constructing rather than only receiving knowledge through their individual and collective endeavours. Such a curricular vision needs to be supported and sustained with systemic reforms of structures and institutions that nurture practices supportive of children's inclusion in school and their learning. Important among these are the system for preparing teachers and supporting their professional practices through monitoring and academic leadership; the system for producing textbooks and learning materials; decentralisation and *Panchayati Raj* Institutions; work-centred education and Vocational Education and Training (VET) and the most important structural feature — the examination system. The curriculum is realised in the activities planned for by the teachers and experienced by the children. The school ethos and practices of teachers depend critically on the architecture of the system. The critical areas that require attention are identified and discussed hereafter.

5.1 CONCERN FOR QUALITY

Curriculum reforms are at the heart of any wide-ranging initiative that may be taken to improve the quality of educational provision at different stages. The prevailing curricular reality needs to be addressed in the following terms:

- The tendency to confuse knowledge with information must be curbed. This tendency encourages the transfer of topics from higher to lower levels.
- Treatment of children's learning as an isolated outcome should be replaced by the application of developmental norms that assume a holistic pattern of growth in motivation and capacity.
- Productive work needs to be viewed as a pedagogic medium for knowledge acquisition, developing values and multiple-skill formation from the pre-school to the senior secondary stages.
- Curricular choices have to be made with due regard to the child's context, ensuring the flexibility and diversity of the approaches emphasised in NPE-1986 and POA-1992.
- Professionalisation of teaching along the lines recommended by the Chattopadhyaya Commission-1984 should be reflected in policies governing recruitment, pre-service, and in-service training, and working conditions.
- Educational technology should be viewed as a supplement rather than as a substitute for hands-on experience, both for classroom teaching and for teacher training.

These recommendations should suffice to indicate our primary concern, that quality is a systemic attribute rather than only a feature of instruction or attainment. As an overarching characteristic, quality expresses the system's capacity to reform itself for enhancing its ability to remedy its own weaknesses and to develop new capabilities. The key reforms required in our system today are those that will enable it to overcome its internal rigidity and its indifference to changing circumstances. This challenge is identical to what POA-1992 had stressed in the need to modernise for greater flexibility. For curricular and training practices to remain relevant in a decentralised system, it is necessary to articulate the objectives and methods of reform with clarity and precision. The following deserve priority:

- Equipping the school for taking decisions at its own level in areas such as purchase of material, collaboration with local institutions, and involvement with other schools in the area, including private schools.
- Linkages between primary, upper primary and secondary levels in the processes of syllabus designing and textbook preparation.
- Setting up of structures that enable school teachers and subject experts drawn from institutions of higher learning to work together for syllabus and textbook revision.
- Creation of spaces where local-level representative institutions can work closely with teachers to enhance efficiency.
- Cooperation between decision-making bodies and NGOs.
- Encouraging greater communication and transparency between different structures and levels of decision making.

Quality is not merely a measure of efficiency; it also has a value dimension. The attempt to improve the quality of education will succeed only if it goes hand in hand with steps to promote equality and social justice. Multiplicity of subsystems and types of schools

tend to have a detrimental effect on the overall quality of the education system because the attention of the more articulate sections of society gets passed on a small fraction of the student population. It is desirable to evolve a common school system to ensure comparable quality in different regions of the country, which is the goal of this National Curriculum Framework, and also ensure that when children of different backgrounds study together, it improves the overall quality of learning and enriches the school ethos. If the curricular vision (flexibility, contextuality and plurality) articulated in this document forms the basis for developing a common school system, then a national system of education where no two schools will be identical becomes a reality. As an objective of curriculum planning, social justice has many obvious implications, but there are some subtle implications as well. One obvious implication is that special efforts will be required to ensure that education promotes an inclusive identity. Children belonging to religious and linguistic minorities need special provision and care in accordance with the perspective reflected in the Constitution**.** In the case of tribal languages, certain states have taken significant measures to facilitate early schooling in the child's home language. A more adequate set of measures providing for multilingual facility on the part of the teacher is needed. Similarly, policy measures taken to widen the curricular scope of madrasa education need to be strengthened.

The subtler implications of social justice as an objective of curriculum policy are more challenging. These relate to awareness and capacities, flexibility and imaginative coordination, among syllabus designers, textbook writers and teachers.

For education to remain a nurturing experience for all children, irrespective of their socio-economic and cultural backgrounds, concrete steps are needed in teacher education, curriculum, and in the procedures used for syllabus and textbook preparation.

Teacher-education programmes, like B.Ed. and M.Ed. in place today, pay inadequate attention to the responsibility that a teacher has in constructing a classroom culture that might provide an inclusive environment for children, especially girls from oppressed or marginalised social backgrounds. In syllabus designing and textbook writing, the items showing sensitivity to cultural differences often come in as afterthoughts rather than as in-built features of the process. The case of gender and special needs is similar. One of the many messages received by NCERT in the course of deliberations over the National Curriculum Framework review came from a teenage girl, who suggested that specific measures are needed to inculcate greater self-awareness among boys regarding their behaviour towards girls. Such an idea could be extended to cover all aspects of a culturally inclusive classroom and school policy.

5.1.1 Academic Planning and Monitoring for Quality

The current practice of academic planning for school education is largely a 'top down' annual exercise. Its focus is on how teaching time should be allocated for teaching of subject content over the year, and stipulating other activities that will be conducted in schools. Typically, this is done by SCERTs or the Directorates/Departments of Education, and presecribed uniformly for all schools in the state. The importance of school-level planning was emphasised by the Kothari Commission when it underscored the need for each school to prepare an 'institutional plan' and evolve a 'development programme spread over a period of time'.

To be meaningful, academic planning has to be done in a participative manner by heads and teachers. One component of planning will include augmentation and improvement of the physical resources of the school. The second is to address the diverse needs of students and to identify the inputs and academic support that the school needs in order to respond to these needs. The planning exercise is an important process through which schools can enlist the involvement and support of the larger community in the education of children. This includes village education committees and other statutory bodies. Micro planning, which includes village-level mapping of school participation (non-enrolled children, attendance patterns, children with special needs, etc.), as well as identification of human resources, allows the school to plan on a more realistic basis for every child. In order to have more independence at the school level, both at the stage of planning and at the stage of implementation, it is necessary that financial allocations permit greater flexibility regarding schemes and norms, and also greater transparency and accountability of budget allocations and expenditure.

There is a need to prepare the system to engage in more extensive and genuine planning from below, rather than only applying the arithmetic of unit costs for programmes determined at the state or national centres. Only then can 'autonomy' and 'choice' of schools and teachers, as well as the responsibility of the school towards the needs of children, become substantive. A broad framework for planning upwards, beginning with schools identifying focus areas, with subsequent consolidation at the cluster and block levels, could create a genuinely decentralised district-level planning. Setting targets, planning for and being responsible for them would then become feasible at all these levels.

5.1.2 Academic Leadership in Schools and for School Monitoring

The potential role of headmasters in providing academic leadership to their schools has yet to be adequately realised. At present, they are seen largely as the administrative authority within the school, though they lack the necessary control to exercise this authority, or even to ensure regular school functioning. Often they are equipped with neither the capacity nor the the authority to exercise choice and judgement relating to the school curriculum. Headmasters (and teachers) need to be able to identify the specific supports that they require for their schools, articulate their expectations regarding the content of training and school visits from the cluster and block personnel, and participate in the process of monitoring and supervision. Currently, they are not differentiated enough from teachers with regard to their academic roles. The role that the headmasters, and indeed the community of headmasters, can play within a cluster of schools must be highlighted. Capacity building for this must receive attention.

Schools are now the focus of an increasing number of programmes aimed at enhancing quality and spreading awareness about societal concerns relating to the environment, health and so on. Headmasters are often besieged by the numerous programmes they are called upon to conduct and participate in. Programmes often lack clarity regarding their objectives and methodology, and their activities tend to overlap. It is important that as part of the process of school-level planning, they should be able to participate in decisions about the programmes they need and how they should be integrated into regular school activities. These programmes could then be coordinated at the cluster and block levels.

Conventionally, monitoring of schools has been through the inspectorate system. This system has served largely to exercise authority and control rather than provide academic support to teachers. The school inspectors perform a number of functions, one of which one is to visit schools under their purview. Their visits are usually few and far between, during which the students and teachers tend to present a positive picture of the school regardless of the ground realities due to fear of punishment. This reduces monitoring to a 'policing' function. Monitoring for quality must be seen as a process that enables and provides constructive feedback in relation to the teaching and learning processes within specific classroom contexts. The monitoring system put in place must be carefully analysed in relation to its objectives, and the norms and practices that are to be institutionalised to achieve the objectives. It must provide for sustained interaction with individual schools in terms of teaching-learning processes within the classroom context.

5.1.3 The *Panchayats* and Education

The 73rd Constitutional Amendment established the three-tier *panchayati raj* system in the country, with elected bodies at the *gram, taluk* and *zilla* levels to enable people to think, decide and act for their collective interest, to provide for greater participation of the people in development, to ensure more effective implementation of rural development programmes in the state, and to plan and implement programmes for economic development and social justice. The 73rd Constitutional Amendment identified 29 subjects for transfer to the *panchayats*, including primary and secondary education, adult and non-formal education, libraries, technical training and vocational education. All state governments enacted their state *Panchayati Raj* Acts in order to realise the constitutional mandate of decentralised democracy and development.

Overlaps and Ambiguities in Functions

Several states in the country have identified functions and activities for implementation at different tiers of *panchayat raj* functioning. In several states, a vast array of functions is assigned to PRIs at every level. In practice, however, PRIs, especially taluk and gram panchayats, discharge few tasks. Barring disbursement of salaries in some states, taluk and gram panchayats discharge practically no functions of any significance in the sectors of education, health, women and child development, and social welfare. Moreover, there are huge ambiguities and overlaps in the functions and tasks to be discharged at different levels. These ambiguities often result in conflicts between the three-tiers, especially with respect to: Who plans? Who decides? Who selects? Who accords approval? Who implements? Who releases funds? Who monitors? Indeed, there is no role clarity between the functions at the different levels.

Principle of Subsidiarity

The principle of subsidiarity is the bedrock of *panchayat raj*. The principle of subsidiarity stipulates: 'What can be done best at a particular level should be done at that level and not at higher levels. All that can be done optimally at the lowest level should be done at that level.' This necessitates a rational and realistic analysis of the functions that are required to be discharged at different levels of PRIs, devolution of those functions to those levels of *panchayati raj*, simultaneously ensuring that required funds are devolved to that level for discharging that function and transacting the activity.

Strengthening Panchayati Raj : The practice of setting up parallel bodies in the form of autonomous registered bodies, for example, *Zilla Saksharta Samitis*, DPEP Societies, SSA Societies at the state level, and

similar bodies at the taluk and village level, has severely undermined the powers of PRIs. These parallel bodies have emerged in large numbers across different sectors. Each village has them; there are village education committees, watershed committees, ryot mitra committees, forest committees, water users associations, none of which are answerable to *panchayats*. These committees receive large funds from external donor agencies, and are dominated largely by the village elite. In short, the major problems in *Panchayat Raj* functioning are that there is:

- No one-to-one correlation between the functions assigned to the different tiers of Panchayat Raj and the funds devolved.
- The tendency to form parallel committees at the village level marginalise democratically elected bodies. These committees undermine the stature of democratically elected bodies and make a mockery of peoples' participation in local planning.

Over the recent past, there has been a growing emphasis on maintaining a large database at the block/ district level on indicators such as rates of enrolment, drop-out, achievement, etc. These are also used as yardsticks for monitoring schools and for larger school management. While official insistence on the regular maintaining of detailed records in relation to these indicators has burdened schools, it has also led to an unnecessary emphasis on quantitative indices of school performance (often leading to data of questionable quality) at various levels without adequate steps to link academic planning and the process of curriculum transaction.

Block Resource Centres (BRCs) and Cluster Resource Centres (CRCs) are now present in almost all districts for monitoring schools and teachers through follow-up. In order to provide training, DIETs have been set up at the district level. Lack of role clarity and overlap of activities afflict the functioning of these organisations. Quite often, personnel in resource centres are mostly reduced to administrative and data-collection functionaries. Given the perspective of decentralised school-level academic planning, and the active and creative involvement of teachers in defining the nature of curriculum transaction for addressing the needs of children, it is urgent that BRCs and CRCs are energised so that they can play a facilitating role. It would be necessary to define the roles of resource persons in these centres, to build their capacities by deepening their subject knowledge and training competence, and to provide them space to function with some autonomy. Rather than routinely conducting workshops designed elsewhere, these centres could focus on conducting workshops along with follow-up activities based on the needs they identify locally. Norms for schools visits, guidelines for systematic monitoring, feedback and academic support will also have to be evolved. There is also a need for institutional mechanisms that coordinate and build upon the work done by resource centres at different levels in order that synergies can emerge.

In order to strengthen school-based academic support for teachers, it is necessary to identify and create a pool of resource persons at the level of the village, cluster and block, and similarly in urban areas, that can contribute to the regular inputs that teachers require, provide support to new ideas and practices, and help work them through. It should be possible to institutionalise such support at the level of the cluster/ block, which can then be integrated into a regular teacher-support programme; funds should be made available for it.

5.2 TEACHER EDUCATION FOR CURRICULUM RENEWAL

Though the professional preparation of teachers has been recognised as crucially important since the 1960s, the ground reality remains a matter of great concern. The Kothari Commission (1964–66) emphasised the need for teacher education to be brought into mainstream academic life, but teacher education institutes continue to exist as insular organisations. The Chattopadhyaya Committee (1983–85) recommended that the length of training for a secondary teacher should be five years following completion of Class 12; it also suggested that colleges of science and arts introduce an Education Department to allow students to opt for teacher education. The Yashpal Committee Report (1993), *Learning Without Burden*, noted: "The emphasis in these programmes should be on enabling trainees to acquire the ability for self-learning and independent thinking."

5.2.1 Present Concerns in Teacher Education

Teacher education programmes today train teachers to adjust to a system in which education is seen as the transmission of information. Attempts at curricular reform have not been adequately supported by the teacher education. Large-scale recruitment para-teachers has diluted the identity of the teacher as a professional. Major initiatives during the mid 1990s were focused on in-service training of teachers. This has accentuated the divide between pre-service and in-service teacher education. Pre-primary, primary and secondary teachers continue to be isolated from centres of higher learning, and their needs for professional development remain unaddressed. Existing teacher education programmes neither accommodate the emerging ideas in context and pedagogy nor address the issue of linkages between school and society. There is little space for engagement with innovative educational experiments.

Experiences in the practice of teacher education indicate that knowledge is treated as 'given', embedded in the curriculum and accepted without question. Curriculum, syllabi and textbooks are never critically examined by the student-teacher or the regular teacher. Language proficiency of the teacher needs to be enhanced, and the existing teacher education programmes do not recognise the centrality of language in the curriculum. It is assumed that links between instructional models and teaching of specific subjects are automatically formed during the programme. Most teacher education programmes provide little scope for student-teachers to reflect on their experiences and thus fail to empower teachers as agents of change

5.2.2 Vision for Teacher Education

Teacher education must become more sensitive to the emerging demands from the school system. For this it must prepare the teacher for the roles of being an:

- encouraging, supportive and humane facilitator in teaching-learning situations to enable learners (students) to discover their talents, realise their physical and intellectual potentialities to the fullest, and to develop character and desirable social and human values to function as responsible citizens; and
- active member of a group of persons who makes a conscious effort for curricular renewal so that it is relevant to changing societal needs and the personal needs of learners.

To be able to realise this vision, teacher education must comprise the following features to enable student-teachers to :

- understand the way learning occurs and to create plausible situations conducive to learning.
- view knowledge as personal experiences constructed in the shared context of teaching-learning, rather than embedded in the external reality of textbooks.
- be sensitive to the social, professional and administrative contexts in which they need to operate.
- develop appropriate competencies to be able to not only seek the above-mentioned understanding in actual situations, but also be able to create them.
- attain a sound knowledge base and proficiency in language.
- identify their own personal expectations, perceptions of self, capacities and inclinations.
- consciously attempt to formulate one's own professional orientation as a teacher in situation-specific contexts.
- view appraisal as a continuous educative process.
- develop an artistic and aesthetic sense in children through art education.
- address the learning needs of all children, including those who are marginalised and disabled.
- In the context of change perspective, it is imperative to pursue an integrated model of teacher education for strengthening the professionalisation of teachers.
- develop the needed counselling skills and competencies to be a 'facilitator' for and 'helper' of children needing specific kinds of help in finding solutions for day-to-day probelmes related to educational, personal and social situations.
- learn how to make productive work a pedagogic medium for acquiring knowledgein various subjects, developing values and learning multiple skills.

Teachers need to be prepared to

- √ *care for children, and should love to be with them.*
- √ *understand children within social, cultural and political contexts.*
- √ *be receptive and be constantly learning.*
- √ *view learning as a search for meaning out of personal experience, and knowledge generation as a continuously evolving process of reflective learning.*
- √ *view knowledge not as an external reality embedded in textbooks, but as constructed in the shared context of teaching-learning and personal experience.*
- √ *own responsibility towards society, and work to build a better world.*
- √ *appreciate the potential of productive work and hands-on experience as a pedagogic medium both inside and outside the classroom.*
- √ *analyse the curricular framework, policy implications and texts.*

5.2.3 Major Shifts in Teacher Education Programme

- Understanding that the learner needs to be given priority. The learner is seen as an active participant rather than a passive recipient in the process of leaning, and his/her capabilities

and potential are seen not as fixed but dynamic and capable of development through direct self-experience. The curriculum will be designed so as to provide opportunities to directly observe learners at play and work; assignments to help teachers understand learners' questions and observations about natural and social phenomena; insights into children's thinking and learning; and opportunities to listen to children with attention, humour and empathy.

- Learning should be appreciated as a participatory process that takes place in the shared social context of the learner's immediate peers as well as the wider social community or the nation as a whole. Ideas expressed by educational thinkers such as Gandhi, Tagore, Sri Aurobindo, Gijubhai, J. Krishnamurty, Dewey and others are often studied in a piecemeal manner, without the necessary context and without concern about where these ideas emanated from. No wonder they are studied and memorised, but seldom applied, by the very same teacher educators who present these ideas to the trainee teachers. The participatory process is a self-experience-based process in which the learner constructs his/her knowledge in his/her own ways through absorption, interaction, observation and reflection.
- The major shift is in the teacher's role where he/she assumes a position centre stage as a source of knowledge, as custodian and manager of all teaching learning processes, and executor of educational and administrative mandates given through curricula or circulars. Now his/her role needs to be shifted from being a source of knowledge to being a facilitator, of transforming information into knowledge/ wisdom, as a supporter in enhancing learning through multiple exposures, encouraging the learner to continuously achieve his/her educational goals.
- Another significant shift is in the concept of knowldege, wherein knowledge is to be taken as a continuum, as generated from experiences in the actual field through observation, verification, and so on. The knowledge component in teacher education is derived from broader areas of the discipline of education, and it needs to be represented as such. It means that conscious efforts are needed to represent an explanation from the perspective of education rather than merely specifying theoretical ideas from related disciplines with "implications for education".
- Knowledge in teacher education is multidisciplinary in nature within the context of education. In other words, conceptual inputs in teacher education need to be articulated in such a manner that they describe and explain educational phenomena—actions, tasks, efforts, processes, concepts and events.
- Such a teacher education programme would provide adequate scope for viewing a theoretical understanding and its practical aspects in a more integrated manner rather than as two separate components. It enables the student-teacher and the teacher in the class room to develop a critical sensitivity to field approaches. Thus, once tried out by self and others, it will lead to evolving one's own vision of an ideal setting for learning. Such teachers

would be better equipped for creating a learning environment, would try to improve existing conditions rather than merely adjusting to them with the necessary technical know-how and confidence.

Another major shift is in understanding the impact of the social context in educative processes.

- Learning is greatly influenced by the social environment/context from which learners and teachers emerge. The social climate of the school and the classroom exert a deep influence on the process of learning and education as a whole. Given this, there is a need to undertake a major shift away from an overwhelming emphasis on the psychological characterisics of the individual learner to his/her social, cultural, economic and political context.
- Different contexts lead to differences in learning. Learning in school is influenced and enhanced by the wider social context outside the school.
- Teacher education programmes need to provide the space for engagement with issues and concerns of contemporary Indian society, its pluralistic nature, and issues of identity, gender, equity, livelihood and poverty. This can help teachers in contextualising education and evolving a deeper understanding of the purpose of education and its relationship with society.
- The shift in performance appraisal in the teacher education programme from an annual affair to a continuous feature needs to be recognised. The teacher-educator evaluates the student-teacher's ability to cooperate and

MAJOR SHIFTS

From	To
• Teacher centric, stable designs	• Learner centric, flexible process
• Teacher direction and decisions	• Learner autonomy
• Teacher guidance and monitoring	• Facilitates, supports and encourages learning
• Passive reception in learning	• Active participation in learning
• Learning within the four walls of the class room	• Learning in the wider social context
• Knowledge as "given" and fixed	• Knowledge as it evolves and is created
• Disciplinary focus	• Multidisciplinary, educational focus
• Linear exposure	• Multiple and divergent exposure
• Appraisal, short, few	• Multifarious, continuous

collaborate, investigate and integrate, and also appraises written and oral skills, originality in approach and presentation, and so on.

- Several kinds of appraisals take place in the form of self-a ppraisal, peer appraisal, teacher's feedback, and formal evaluation at the end of the year. All appraisals aim at improvement, understanding one's own strengths and weaknesses, understanding what has to be strengthened, and identifing the next goals in the learning process.
- The appraisal mostly will not be given in marks (quantitative), but on a scale (qualitative), where the student's achievement is evaluated as a continuum and he/she is placed according to his/her performance in various activities.
- In brief, the new vision of teacher education will be more responsive to changes in the school system as it envisages a significant paradigm shift. The major shifts have been stated on the left.

5.2.4 In-Service Education and Training of Teachers

In-service education can play a significant role in the professional growth of teachers and function as an agent for change in school-related practices. It helps teachers gain confidence by engaging with their practices and reaffirming their experiences. It provides opportunities to engage with other teachers professionally and to update knowledge. The Education Commission (1964–66) recommended that in-service education for teachers should be organised by universities and teacher organisations to enable every teacher to receive two or three months of in-service education once in five years; that such programmes should be based on research inputs; that training institutions should work on a 12-month basis and organise programmes like refresher courses, seminars, workshops and summer institutes. The Report of the National Commission on Teachers (1983–85) mooted the idea of Teachers' Centres that could serve as meeting places, where talent could be pooled and teaching experiences shared. It suggested that teachers could go to centres of learning on study leave. The NPE (1986) linked in-service and pre-service teacher education on a continuum; it visualised the establishment of District Institutes of Education and Training (DIETs) in each district, upgradation of 250 colleges of education as Colleges of Teacher Education (CTEs), and establishment of 50 Institutes of Advanced Studies in Education (IASEs), and strengthening of the State Councils of Educational Research and Training (SCERTs). The Acharya Ramamurthi Review Committee (1990) recommended that in-service and refresher courses should be related to the specific needs of teachers, and that evaluation and follow-up should be part of the scheme.

In places where multigrade schools have been established in order to facilitate access to primary schooling, teachers need special training in managing such classrooms, which must be conducted by those who have experience in classroom management and organisation for these classes. Prescriptions on how to manage, without the support of appropriate materials, or guidance in planning units and topics, does little to assist teachers whose experience and imagination is completely oriented to the monograde setting. Instead of being merely told what to do, detailed unit planning exercises, along with direct practical experiences in places where multigrade class teaching practices have

become established, and films depicting such situations, need to be used in training and for helping teachers overcome their lack of confidence.

5.2.5 Initiatives and Strategies for In-Service Education

Following NPE 1986, efforts have been made to develop institutions like DIETs, IASEs and CTEs for providing in-service education to primary and secondary schoolteachers; 500 DIETs, 87 CTEs, 38 IASEs, and 30 SCERTs, have been set up, although many of them have yet to function as resource centres. DPEP also brought in the block and cluster resource centres and made in-service teacher education and cluster-level schools as the follow-up for the main strategies for pedagogic renewal. In spite of the widespread efforts and specific geographical areas which have shown improvements, by and large the in-service inputs have not had any noticeable impact on teacher practice.

A major indicator of quality of training is its relevance to teachers' needs. But most such programmes are not organised according to actual needs. The approach adopted has remained lecture based, with little opportunity for trainees to actively participate. Ironically, concepts such as activity-based teaching, classroom management of large classes, multigrade teaching, team teaching, and cooperative and collaborative learning, which require active demonstration, are often taught through lectures. School follow-up has also failed to take off, and cluster-level meetings have not been able to develop into professional fora for teachers to reflect and plan together.

Any curriculum renewal effort needs to be supported with a well thought-out and systematic programme of in-service education and school-based teacher support. In-service education cannot be an event but rather is a process, which includes knowledge, development and changes in attitudes, skills, disposition and practice — through interactions both in workshop settings and in the school. It does not consist only of receiving knowledge from experts; promotion of experiential learning, incorporating teachers as active learners, and peer group-based review of practice can also become a part of the overall strategy. Self-reflection needs to be acknowledged as a vital component of such programmes. A training policy needs to be worked out, defining parameters such as the periodicity, context and methodology of programmes. But efforts to strengthen quality and ensure vibrant rather than routinised interactions would require far more decentralised planning with clarity on goals and methods for training and transfer. 'Mass training using' new technologies may be of use in some aspects of training, but much greater honesty and bold creativity are required for addressing the concerns of practising teachers directly, including the deprofessionalised environments in which they work, their lack of agency, and their alienation.

Dissemination technologies can serve to build a positive ethos for curricular reforms if they are used as sites of discussion and debates in which teachers, training personnel and community members can participate. Teachers require first-hand experience of making programmes themselves in order to develop an interest in the new technology. The availability of computers and linkage facilities remains quite inadequate in training institutes. This is one reason why the potential of the new communication technology for changing the ethos of schools and training institutions has remained inadequately tapped.

Pre-service teacher education as well as in-service training must build the necessary orientation and capacities in teachers so that they can appreciate, understand and meet the challenges of the curriculum framework. In-service training, in particular, must be situated within the context of the classroom experiences of teachers. DIETs, which have the responsibility of organising such training, should do so in a manner in which both teachers and their schools benefit from such training. For instance, instead of the ad hoc manner in which teacher trainees are sent for in-service training by the educational administration, it would be better for a cluster of schools to be identified and a minimum number of trainees (at least two, to enable some peer sharing and reflection) invited from each school to participate in an in-service training programme. DIETs, in coordination with BRCs, could identify the schools for this purpose. In order that teaching time is not unduly affected, and teacher trainees are able to make the link between theory and practice, the mandatory days for training could be split up over the course of the year to include on-site work in their own classrooms as well.

Reducing Stress and Enhancing Success in the X and XII Public Examinations

Shift from content based testing to problem solving and competency based testing, content based testing induces bad pedagogy and rote learning, both of which cause stress during examinations. Basic tables and formulae could be provided to reduce emphasis on memory and focus on analysis, evaluation and application. Shift towards examinations of shorter duration with flexible time in which 25 to 40 per cent is for short answer type questions and the remaining for well designed multiple choice questions. 90 per cent of all students taking the examination should be able to complete the paper and review/revise the same.

- √ *Better conduct examinations in student's own school or nearby school. Malpractices could be minimized by having invigilation teams from other schools.*
- √ *Postponement of examination should be avoided under all circumstances.*
- √ *Permit students to appear in as many subjects as they are prepared for and complete the board certification requirements within a three-year window. The boards could work towards 'on-demand' examinations, in which students can take as and when they feel prepared.*
- √ *Eliminate the terminology of 'pass'-'fail'; indicate lack of adequate proficiency through re-examination or reappear or retake recommended'*
- √ *Board should conduct re-examination immediately after announcement of results to enable students needing retake in one or two subjects to move to the next stage without losing a year.*
- √ *Subjects such as Mathematics and English could be examined at two levels; standard and higher level. In the long term all subjects could be offered at two levels with students doing at least three/two of the six at standard level and the remaining three/four at higher level.*
- √ *Examination with a 'flexible time limit' can be an effective way to reduce stress among children.*
- √ *Guidance and Counselling be made available in schools to deal with stress related problems and to guide students, parents and teachers to lessen thestudents stress. Helplines in boards can also help students and parents.*

Training could comprise a variety of activities in addition to contact lectures and discussions in the teacher training institutions and include workshops in schools in the cluster, projects and other assignments for teachers in their classrooms. To link pre-service and in-service training, the same schools can become sites for pre-service internship, and student teachers can be asked to observe classroom transaction in these schools. This could serve not only as feedback to teacher educators for strengthening the training programme but can also become the basis of critical reflection by teacher trainees during the latter part of the training programme. To take the process forward, there could be interactive sessions with headmasters from the concerned schools so that they can play the role of a facilitator in the changes in classroom practices that the teacher trainees may like to make. Systems for monitoring and feedback must include SCERTs/DIETs /BRCs and CRCs so that academic support can be envisaged in follow ups', documentation and research.

5.3 Examination Reforms

The report, *Learning without Burden* notes that public examinations at the end of Class X and XII should be reviewed with a view to replacing the prevailing text-based and quiz-type questioning, which induces an inordinate level of anxiety and stress and promotes rote learning. While urban middle-class children are stressed from the need to perform extremely well, rural children are not sure about whether their preparation is adequate even to succeed. The high failure rates, especially among the rural, economically weaker and socially deprived children, forces one to critically review the whole system of evaluation and examination. For if the system was fair and working adequately, there is no reason why children should not progress and learn.

5.3.1 Paper Setting, Examining and Reporting

In order to improve the validity of current examinations, the entire process of paper setting needs to be overhauled. The focus should shift to framing good questions rather than mere paper setting. Such questions need not be generated by experts only. Through wide canvassing, good questions can be pooled all year round, from teachers, college professors in that discipline, educators from other states, and even students. These questions, after careful vetting by experts, could be categorised according to level of difficulty, topic/area, concept/competency being evaluated and time estimated to solve. These could be maintained along with a record of their usage and testing record to be drawn upon at the time of generating question papers.

Compelling teachers to examine without paper offering adequate remuneration makes it difficult to motivate them to ensure better quality and consistency in evaluation. Considering that most boards are in good financial health, funding issues should not come in the way of improving the quality of evaluation. With computerisation, it is much easier to protect the identity of both examinee and examiner. It is also easier to randomise examination scripts given to any particular examiner, thus checking malpractices and reducing inter-examiner variability. Malpractices such as cheating with help from outside the examination hall can be reduced if candidates are not permitted to leave the exam centre in the first half time, and also are not permitted to carry question papers out with them while the examination is still going on. The question paper can be made available after the examination is over.

Computerisation makes it possible to present a wider range of performance parameters on the marksheet—absolute marks/grades, percentile rank among all candidates taking the examination for that

subject, and percentile rank among peers (e.g. schools in the same rural or urban block). It would also be possible to analyse the quality and consistency of various examiners. The last parameter, in particular, we believe to be a crucial test of merit. Making this information public will allow institutions of higher learning to take a more complex and relativist view of the notion of merit. Such analysis will promote transparency. Requests for re-checking have declined dramatically in places where students have access to their answer papers in either scanned or xeroxed form, on request, for a nominal fee.

In the medium term, we need to be able to increasingly shift towards school-based assessment, and devise ways in which to make such internal assessment more credible. Each school should evolve a flexible and implementable scheme of Continuous and Comprehensive Evaluation (CCE), primarily for diagnosis, remediation and enhancing of learning. The scheme should take, into account the social environment of and the facilities available in the school.

Sensitive teachers usually pick up the unique strengths and weakness of students. There should be ways of utilising such insights. At the same time, to prevent abuse by schools (as is currently the case in practical examinations), they could be graded on a relative, not an absolute, scale and must be moderated and scaled against the marks obtained in the external examination. More research is required on development, teacher training and relevant institutional arrangements.

5.3.2 Flexibility in Assessment

A lot of psychological data now suggest that different learners learn (and test) differently. Hence there should be more varied modes of assessment beyond the examination hall paper-pencil test. Oral testing and group work evaluation should be encouraged. Open-book exams and exams without time limits are worth introducing as small pilot projects across the country. These innovations would have the added advantage of shifting the focus of exams from testing memory to testing higher-level competencies such as interpretation, analysis and problem-solving skills. Even conventional exams can be nudged in this direction through better paper setting and providing standard and desirable information to candidates (such as periodic tables, trigonometric identities, maps and historical dates, formulae, etc.).

Because of the differing nature of learners, and the widely variable quality of teaching, the expectation that all candidates should demonstrate the same level of competence in each subject in order to reach the next level of education is unreasonable. In the light of the urban–rural gap in India, this expectation is also socially regressive. It is well documented, for instance, that much of the higher failure and dropout rates in rural schools can be attributed to poor performance in two subjects — Maths and English. Boards should explore the possibility of allowing students to take exams in these subjects at one of the two (or even three) levels. This need not require that curricula or textbooks will differ for different levels.

The "one-exam-fits-all" principle, while being organisationally convenient, is not a student-centred one. Nor is it in keeping with the rapidly evolving nature of the Indian job market, with its increasing differentiation. The industrial assembly-line model of assessment needs to be replaced by a more humanistic and differentiated one. If, as economists predict, four out of every four new jobs in the next decade will be in the services sector, a paradigm shift in Indian education is called for. As fewer and fewer Indians make standardised widgets, and more and more work to solve problems for their fellow citizens, the Indian exam system will

also need to become more open, flexible, creative and user friendly.

5.3.3 Board Examinations at Other Levels

Under no circumstances should board - or state-level examinations be conducted at other stages of schooling, such as Class V, VIII or XI. Indeed, boards should consider, as a long-term measure, making the Class X examination optional, thus permitting students continuing in the same school (and who do not need a board certificate) to take an internal school exam instead.

5.3.4 Entrance Examinations

There is a need to delink school-leaving board examinations from competitive entrance examinations. These entrance examinations can be made less stressful if students had to take fewer of them. A single nodal agency could coordinate the conduct of entrance examinations several times a year, at centres located all over the country, and monitor and ensure the timely conduct and release of student achievement indicators. The scores obtained by students at such a national-level examination could be used by all institutions for the purpose of admitting students to universities and professional courses. The actual design and test preparations should not fall within the purview of this nodal agency.

5.4 Work-centred Education

Work-centred education implies that the knowledge base, social insights and skills of children in relation to their habitat, natural resources and livelihood can be turned into a source of their dignity and strength in the school system. It is to be recognised as a meaningful and contextual entry point for organising the curricular experience in the school. In this sense, the experiential base can be further developed through more evolved forms of work in the school, including social engagement. This pedagogy is expected to facilitate a child-friendly route to disciplinary knowledge, development of values primarily drawn from the Constitution and related to social transformation, and the formation of multiple skills that are relevant for facing the complex challenges of a globalised economy. It is this educational process that calls for the application of critical pedagogy for linking the experience of productive and other forms of work with global knowledge.

The introduction of productive work as a pedagogic medium in the school curriculum will have major transformative implications for various dimensions of the education system—philosophical, curricular, structural and organisational. Work-centred education will call for the reconceptualisation and restructuring of specific aspects such as academic autonomy and accountability; curriculum planning; sources of texts; teacher recruitment and teacher education; notions of discipline, attendance and school inspection; knowledge across subject boundaries, organisation of the school calendar, classes and periods; creating learning sites outside the school; evaluation parameters and assessment procedures and public examinations. All this implies that curricular reforms and quality improvements are intricately linked to systemic reforms.

5.4.1 Vocational Education and Training

At present, Vocational Education is provided only at the +2 stage and, even here, it is restricted to a distinct stream that is parallel to the academic stream. In contrast to the NPE 1986 goal of covering 25 per cent of the +2 enrolment in the vocational stream by the year 2000, less than 5 per cent of students choose this option at present. The programme has been debilitated

by a range of conceptual, managerial and resource constraints for more than 25 years. Apart from being viewed as an inferior stream, it suffers from poor infrastructure, obsolete equipment, untrained or under-qualified teachers (often on a part-time basis), outdated and inflexible courses, lack of vertical or lateral mobility, absence of linkage with the 'world of work', lack of a credible evaluation, accreditation and apprenticeship system, and, finally, low employability (Report of the Working Group for the Revision of the Centrally Sponsored Scheme of Vocationalisation of Secondary Education, NCERT, 1998). Clearly, the gigantic and urgent task of building an effective and dynamic programme of vocational education is long overdue. Institutionalisation of work-centred education as an integral part of the school curriculum from the pre-primary to the +2 stage is expected to lay the necessary foundation for reconceptualising and restructuring vocational education to meet the challenges of a globalised economy.

It is proposed, therefore, that we move in a phased manner towards a new programme of Vocational Education and Training (VET), which is conceived and implemented in a mission mode, involving the establishment of separate VET centres and institutions from the level of village clusters and blocks to sub-divisional/ district towns and metropolitan areas. Wherever possible, it would be in the national interest to utilise the school infrastructure (often utilised for only a part of the day) for setting up this new institutional structure for VET. Such VET centres/ institutions also need to be evolved in collaboration with the nationwide spectrum of facilities already existing in this sector. This will imply the expansion of the scope of institutions like ITIs, polytechnics, technical schools, Krishi Vigyan Kendras, rural development agencies, primary health centres (and their auxilliary services), engineering, agricultural and medical colleges, S & T laboratories, cooperatives and specialised industrial training in both the private and public sectors. These measures would naturally call for shifting and adjusting the resources of the present 6,000 - odd senior secondary schools with vocational streams by dovetailing them with the new VET programme. The vocational education teachers engaged in these schools at present should have the option of either being absorbed in to the work-centred education programme in the same school or being able join a new VET centre or institution in the region.

VET would be designed for all those children who wish to acquire additional skills and/or seek livelihoods through vocational education after either discontinuing or completing their school education. Unlike the present vocational education stream, VET should provide a 'preferred and dignified' choice rather than a terminal or 'last-resort' option. As with the school, these VET institutions would also be designed to be inclusive, providing for skill development of not just those children who have historically suffered due to their economic, social or cultural backgrounds, but also of the physically and mentally disabled. A well-designed provision of career psychology and counselling as a critical development tool would enable children to systematically plan their movement towards their future vocations or livelihoods, and also guide the institutional leadership in curricular planning and evaluation. The proposed VET shall offer flexible and modular certificate or diploma courses of varying durations (including short durations) emerging from the contextual socio-economic scenario. Decentralised planning of these courses at the level of individual VET centres/ institutions and/or clusters thereof would have to keep in mind the ongoing rapid changes in technology and patterns of production and services in

a given area, along with the diminishing access to natural resources and livelihoods for the vast majority of the people. The courses would provide multiple entry and exit points with in-built credit accumulation facility. Each course will also have an adequate academic component (or a provision for a bridge course or both) in order to ensure lateral and vertical linkages with the academic and professional programmes. The strength of a VET centre would lie in its capacity to offer a variety of options depending upon the felt need of the aspirants.

The VET curriculum should be reviewed and updated from time to time if the programme is not to become moribund and irrelevant to the vocations and livelihoods in a given area or region. The centre in-charges or institutional leadership would need to have access to adequate infrastructure and resources as well as be vested with the necessary authority and academic freedom to establish 'work benches' (or 'work places' or 'work spots') in the neighbourhood or regional rural crafts, agricultural or forest-based production systems and industries and services, thereby utilising the available human and material resources optimally. This collaborative arrangement has three advantages. First, the VET programme can be set up with minimum capital investment. Second, the students would have access to the latest techniques and technology that become available in the area. Third, the students would get on-the-job experience and exposure to real-life problems of designing, production and marketing. For this purpose, it should be made obligatory for all kinds of facilities engaged in production and services such as agriculture, forestry, private and public sector industries (including cottage and small-scale manufacturers) to collaborate with the schools in the area by providing the required 'work benches' (or 'work places' or 'work spots'), in the addition to offering training and monitoring support.

The success of the VET programme is also critically dependent upon building up a credible system of evaluation, equivalence, institutional accreditation (extending to 'work benches' and individual expertise) and apprenticeship. Care has to be taken to ensure that such standardisation does not become a negative tool for rejecting/ disqualifying the diverse knowledge and skills that characterise the different regions of India, especially the economically underdeveloped regions like the North-east, hilly tracts, the coastal belt and the central Indian tribal region. An appropriate structural space and a welcoming environment will have to be created in the VET centres and institutions for engaging farmers, animal husbandry, fishery and horticulture specialists, artisans, mechanics, technicians, artists, and other local service providers (including IT) as resource persons or guest faculty.

The eligibility for VET courses could be relaxed to include a Class V certificate until the year 2010, when the *Sarva Shiksha Abhiyan* is expected to achieve UEE, but subsequently it must be raised to Class VIII certificate and eventually to Class X certificate when the target year of universal secondary education is reached. In no case, however, would children below the age of 16 years be eligible for admission to a VET programme. VET centres could also act as skill and hobby centres for all children from the primary stage onwards, and could be accessed before or after school hours. Such centres should also be available for schools to negotiate a collaborative arrangement for the work-centred curriculum even during school hours.

In order to translate this vision of VET into practice, several new support structures and resource institutions will have to be created at various levels, including districts, states/ UTs and the centre, besides strengthening and reviving the existing national resource institutions like NCERT's PSSCIVE at Bhopal.

5.5 INNOVATION IN IDEAS AND PRACTICES

5.5.1 Plurality of Textbooks

Given the perspective that curricular content must meaningfully incorporate experiences of children and their diverse cultural contexts, including languages, it is important that textbook writing is decentralised keeping in view the capacities that are required as well as the systems that will make this possible. The writing of textbooks requires a range of capacities that include academic and research inputs, understanding of children's developmental levels, effective skills of communication and design, etc. While SCERT, which has been given the task of textbook writing at present, can continue to be the nodal organisation for this purpose, the actual envisioning of the process, selection and writing of content must be done in a collaborative manner by teams rather than by individual subject experts. Among the reasons for such a collaborative exercise are perspective building, clarification of assumptions about how children learn, undertaking of the required revisiting of subject knowledge and research input, understanding of processes of how to communicate with children, providing structured space for reflection and feedback by peers as an ongoing process in the making of textbooks, and so on. Academic and research support from universities, and the rich experiences of NGOs as well as practitioners, must be important inputs in this exercise.

The trial of the textbook is extremely critical given that at present children often find text lessons difficult to comprehend, with content that is dense or at times trivial. Lessons are often written without relating them to the time that is assigned for the subject to be taught in the school year. It may be a good idea for the initial lessons to be piloted, i.e. to be taught on a trial basis, with the textbook writer observing its transaction in the class while also receiving feedback from both teacher and students. This is also important when innovating with textbook content (for instance, providing space for integrating children's experiences) in order to understand and place them within the realities of the classroom and teacher preparation.

It follows that we are ideally looking at the availability of multiple textbooks for schools as they widen teachers' choices and also provide for the incorporation of diversity in relation to children's needs and interests. When a number of books and supplementary materials are available, the teacher can be encouraged to decide which text lessons are appropriate for specific themes for her pupils. This would substantively enhance the teacher's autonomy and choice. Alternatively, they can also provide opportunities to encourage children to explore diverse sources and understand how the same content may be presented in different ways. This will encourage library work. The support system that must be ensured will include training programmes/workshops to orient and enable teachers to use textbooks and supplementary materials as resources for curriculum transaction and access to library facilities within the school or in a resource centre for a set of schools. The sharing of libraries between schools must also be consciously planned for, and this can be built into partnerships between private and government schools. The setting up of community libraries can also be explored.

Encouraging the production of multiple textbooks that are officially prescribed by schools will increasingly bring the private sector into the area of textbook production. In this context, it is important to equip state institutions for research and training in education (whose responsibilities include textboks production) to compete with private publishers and capacities built for this purpose. As mentioned earlier,

if SCERTs can make the production of textbooks a collaborative exercise, it will improve the quality of their textbooks, build capacities, as well as energise these institutions. NGOs have also produced excellent textbooks and supplementary materials that can be used in schools. Some thought must also be given to the regulatory mechanism that must be set in place to ensure that textbook writers abide by the guiding principles and values of the Constitution (especially equality, secularism and democracy), the aims of education, authenticity and developmental appropriateness of content, and so on. In addition, it is essential to see that textbook production does not lend itself to private profiteering and deny easy access to education. Discussion of textbooks by parents, teachers and citizens' groups must be encouraged, and they must be made available in the public domain (the Internet can provide space for this purpose, and textbooks can be made available on the Web) for discussion, feedback, critique, etc. Universities can be encouraged to conduct studies of textbooks so that regular research output on school knowledge is available.

5.5.2 Encouraging Innovations

Individual teachers often explore new ways of transacting the curriculum in addressing the needs of students within their specific classroom context (including constraints of space, large numbers, absence of teaching aids, diversity in the student body, the compulsions of examinations, and so on). These efforts, often pragmatic but also creative and ingenious, by and large remain invisible to the school and the larger teaching community, and are usually not valued by teachers themselves. The sharing of teaching experiences and diverse classroom practices can provide opportunities for an academic discourse to develop within schools as teachers interact with and learn from each other. This will also encourage new ideas and facilitate innovation and experimentation. How can innovative and creative ways of teaching and learning be encouraged and supported by the system so that they can become a body of practice that can be brought to a stage when they can be built back into the system? For a start, there is a need to create structured spaces within schools, and at the level of the cluster and block where teachers are encouraged to share and discuss classroom practices and experiences. If seen as worthwhile, some of these ideas and practices can be systematically followed up. It is also important to bring together groups of teachers within and across schools and provide support to them in terms of resources as well as time to work together. There is also, a need for documentation and research of identified 'good practices'. At present, there are funds for this purpose both with DIETs (part of whose mandate is identification and documentation of innovative practices). SSA also has funds for school-based research. Some of this could be used to document the diverse practices that teachers use in different classroom contexts. In addition to providing the necessary funding, the creation of an enabling environment that nurtures and provides support to such initiatives is also important. As mentioned earlier, efforts to mainstream innovative processes and practices will be necessary. One of the main objectives of creating resource centres at the cluster level was to break the isolation of individual schools and bring teachers together on a regular basis for sharing their experiences and ideas with their peers. This is important if teachers are to develop their own professional identities and sense of belonging to a larger teaching community. It could also be one way of creating among them a sense of their own agency and fostering a sense of greater involvement and commitment to their work.

5.5.3 The Use of Technology

The judicious use of technology can increase the reach of educational programmes, facilitate management of the system, as well as help address specific learning needs and requirements. For instance, mass media can be used to support teacher training, facilitate classroom learning, and be used for advocacy. Possibilities of teaching and learning at varied paces, self-learning, dual modes of study, etc. could all benefit from the use of technology, particularly ICT. The increasing use of the Internet has enabled the sharing of information and provided space for debate and dialogue on diverse issues hitherto unavailable on such a scale. Technological innovations are also necessary for appropriate equipment and aids for meeting the learning requirements of children with special needs. What needs to be underscored is that technology could be integrated with the larger goals and processes of educational programmes rather than viewed in isolation or as an add-on. In this context, technological use that turns teachers and children into mere consumers and technology operators needs to be reviewed and discouraged. Interaction and intimacy are key to quality education, and this cannot be compromised as a principle in any curricular intervention.

5.6 NEW PARTNERSHIPS

5.6.1 Role of NGOs, Civil Society Groups, and Teacher Organisations

One of the distinct features of the last decade was the increasing involvement of non-government organisations and civil society groups in education. NGOs have played a major role in creating innovative models of schooling, training of teachers, development of textbooks and curricular materials, community mobilisation and advocacy. Their formal association with schools and resource centres would be extremely important for curriculum development, academic support, as well as monitoring and research. Civil society groups have also helped to give education a visible public space, and facilitated the emergence of a discourse on the child's right to education. The dissemination of the perspective and ideas of the NCF, their translation into creative and innovative practices within the school and community, critical feedback on different aspects of the curriculum, as well as the nurturing of an environment of commitment to the right to education of children, would all need collaboration and sustained involvement of diverse civil society groups.

Teachers' associations and organisations can play a far greater role in strengthening school education than has hitherto been the case. For instance, they can help evolve norms to improve school functioning by using their influence over their teacher members to ensure that teaching time is not compromised, and help create a culture of accountability. They can also draw attention to the inputs and supports that are necessary for effective curriculum transaction, and act as constructive pressure groups on issues such as school resources, quality of teacher education and professional development. These associations can work with local-level organisations as well as with BRCs and CRCs in defining the nature of academic support required, provide feedback and so on.

The roles and functions of SCERTs need to include providing support not only in purely academic areas but psychological aspects as well. SCERTs must take steps to strengthen the guidance bureaus/units already existing with them by setting them up as resource centres at the state level for in-service teacher training in this area, production of psychological tools/ tests, career literature, etc. and make counselling services available at district/block and school levels by positioning professionally trained guidance personnel.

Universities have a critical role to play in responding to the wide-ranging aims of the curricular framework, especially in emphasising and encouraging pluralism in education, addressing the needs of children, and integrating new curricular areas. There is an urgent need to expand the knowledge base of education keeping in view the diverse socio-cultural contexts to which children belong as well as the complex nature of classroom realities in India. University departments of education, social science as well as the sciences should be urged to include the study of education in their research agenda. Mutlidisciplinary and collaborative research bringing together scholars from different disciplines would be particularly important in generating a research base that is critical for translating the ideas in the curriculum framework into enabling classroom practices. At the same time, universities need to keep their doors open to children coming from schools with unusual and interesting combinations of study. Rather than using admission criteria to eliminate, they should remain inclusive and encouraging of diversity of interests, pursuits and opportunities. Such open and inclusive admission policies are also crucial if children are to seriously consider vocational courses of study as non-terminal options.

Institutions of higher education have an important role to play in teacher education and in enhancing the professional status not only of secondary schoolteachers but also elementary schoolteachers. For the, 'reflective teacher' who possesses the professional competence and orientation that the curriculum framework rests on, it will be necessary to review and restructure teacher education programmes. Equally important will be the sustained involvement of scholars in curriculum development, writing and reviewing textbooks as part of a collaborative exercise, which brings together practitioners and academics with diverse expertise. Higher education can also provide space for reflection, discussion and debate on educational ideas and practices as well as facilitate the interface between schools and policy makers.

There is also need for institutional linkages between universities and institutions such as SCERTs and DIETs to strengthen their academic programmes of teacher education and in-service training as well to develop their research capacities. In this context, it would be appropriate to explore once again the idea of creating school/educational complexes that would bring together universities, colleges, schools, SCERTs/DIETs as well as NGOs within a geographical area to evolve networks and mechanisms for providing academic support and participating in monitoring, and evaluation of programmes.

The preparation of curricula, syllabi and teaching-learning resources, including textbooks, could be carried out in a far greater decentralised and participative manner, increasing the participation of teachers, along with representatives and experts from other organisations. This is especially important when we are exploring the possibility of producing more than one textbook for each grade and subject, so that there is far greater local relevance in materials, and also a plurality of materials from which teachers can choose. Such large teams could also produce supplementary materials such as reading cards and small stories based on local lore and illustrations, which are often more interesting to children. Choice and variety, which exist in more elite schools, can become common features of all schools.

The Department of Woman and Child Development, Department of Health, Department of Youth Affairs and Sports, Department of Science and Technology, Department of Tribal Affairs, Department of Social Justice and Empowerment,

Department of Culture, Department of Tourism, Archeological Survey of India, PRIs, to name a few, are all stakeholders with an interest in the welfare and progress of children, school, and curriculum. All these departments have the ability to contribute to enriching education for children and teachers. For example, health and physical education requires synergies across different departments since the curricular content falls within the purview of at least five ministeries. In order to ensure the effective transaction of the curriculum, there must be some system of coordination across the key deparments, and it is the school curriculum that must lead programmes rather than the stand- alone programmes intervening in the school curriculum. They need to explore and discover ways in which they can contribute to children's education, by converging their inputs with the efforts of departments of education. They can do so by providing additional facilities to schools, funding special programmes that enrich the curriculum, such as sports clubs and sports equipment along with special instructors, organising visits and excursions to historical, archeological and natural sites and providing materials about these places, providing reference materials, photographs and charts (including films and photographs), ensuring regular health check-ups, and monitoring the quality of the midday meal. These are some of the ways in which these departments can directly contribute to and enhance the quality of the school curriculum. Educationally meaningful contributions need to be planned in consultation with education departments rather than being conceived independently and simply delivered. This is necessary to ensure that what is being designed is useful and usable. Similarly, they could respond to requests made by the department of education for specific programmes or inputs.

EPILOGUE

This framework for curriculum presents a vision of what is desirable for our children. It seeks to enable those who are involved with children and their schooling with the bases on which they can make choices that determine the curriculum. This provides an understanding of issues relating to children's learning, the nature of knowledge and the school as an institution. This approach to the curriculum draws attention to the importance of the school ethos and culture, the classroom practices of teachers, learning sites outside the school, and learning resources, as much as to the dimensions of the system that exert direct and indirect influence. The designing of large-scale curricular interventions, key activities such as the preparation of syllabus and textbooks, and examination reform must be consistent with each other and with educational aims for progress and improvement in the quality of education that we provide to our children.

Hundreds of parents and teachers sent messages to NCERT in response to advertisements inviting public contributions for the National Curriculum Framework. One of these messages was from a Mumbai-based mother and teacher, Mrs. Neeta Mohla. She wrote:

Today as students my children face the same learning experiences as me 20 years ago. Everywhere around the world new methods of teaching and evaluation are being practised but our children continue to just copy exercises from the board, mug them up and reproduce them in the exam. If there are changes, they are for the worse. Children now have access to more information channels, yet more and more subjects and content are added to the school bag. Computers, Moral Science etc., etc. recently became hit and G.K. was introduced as a new subject because the quiz show "Kaun Banega Crorepati…

Our syllabus gets more massive and moves beyond the teaching capacity of the teachers, so they rush through the contents with tedious methodology. Students cannot meet the attention span requirement in the classrooms and either fail at comprehension or blank out into daydreaming. Newer topics of many different subjects are covered even before the previous ones have been chewed over. The burden of the syllabus is then passed on to the parents or tuition classes. Little children burdened with loads of education on their shoulders, trip from school to tuition classes, bypassing childhood. A section of students study harder and harder to beat each other for the top slot. Majority of the students are hounded by parents and teachers to study harder and become stressed, some requiring even clinical treatment. Only children who excel in the main subjects are regarded as successful. Children with accomplishments in other fields like sports and arts are underrated. They are earnestly discouraged from pursuing sports and hobbies as these don't count in the mark list. The curriculum and success dynamics demand that they shut out the real world with real experiences and lock themselves up in the world of books. Even sixth standard. students must study four hours in addition to school hours if they want to enter into the race for marks.

When children in their developmental years spend more time in books than in the real world, they have every chance of becoming fragmented. Education ventures into a negative course. It splits a student's mind into two. A bookish worldview that he memorises without proper comprehension and the real world that is not in his/her control due to lack of focus. Take the example of a typical fourth standard child; he knows how stopping cattle grazing on hilltops can prevent soil erosion but he

cannot keep track of his/her notebooks and pencils. Ultimately he grows into an adult with a lot of knowledge sense but no common sense, a "padha likha bevakoof" (an educated fool). Good characters and personalities develop through focus on their development. Instead, a lot is taught which he cannot relate with his/her day-to-day life experiences and surroundings. For those who blank out into daydreaming education fails to make any impression, leaving them vulnerable to other dangerous influences. There is no support system for children in need of it. Parents today are just as stressed as their wards. A staggering 75 percent children preparing for Board Examinations today suffer from stress-related disorders.

Mrs. Neeta Mohla offers several concrete suggestions, some of which are the following :

- Balance what should be taught in favour of what can possibly be learnt. The structures of nature are architectural marvels wherein each part functions in coordination with the whole. The real challenge is to plan the curriculum so that it has the main elements that work to keep the broad objectives of education on course, and are well grounded in the realities of availabilities and constraints.
- Instead of a structure built to promote success for a select few, we must adopt a structure that engages participation in learning by all. The base should be sturdy so it lasts a whole life. The pillars should be broadened and redefined. New pillars like personality, character, physical fitness, creative and critical thinking should be laid alongside the old academic pillars of maths, science, history, etc.
- Contents must be linked to the challenges of life and career at different stages. Students and teachers must be given the requisite time to focus on them. Acquisition of pure knowledge should be for the purpose of self-discovery of the child's own interest. This should be covered through alternative study methodology like project method and alternative evaluation models like open-book exams. We need only implant the seeds of every subject. Whole plants do not have to be hammered in. Education should inspire children to become learners for life.
- We must humanise education and make it relevant for the pursuit of the wide variety of human aptitudes. Alternative evaluation and grading models must be sought to encourage the diversity of talents among the learners. Achievers in sports, arts and crafts should get due recognition at par with academic achievers. Expanding the achievement list would definitely de-stress parents and children by spreading them out on to more tracks. The change to grading would shift the society's focus away from the social Darwinian implications of the curriculum.

Let us hope that curriculum, syllabi and textbook designers across the country will pay adequate and urgent attention to this mother's words.

APPENDIX – I

SUMMARY

CHAPTER 1

- Strengthening a national system of education in a pluralistic society.
- Reducing the curriculum load based on insights provided in 'Learning Without Burden'.
- Systemic changes in tune with curricular reforms.
- Curricular practices based on the values enshrined in the Constitution, such as social justice, equality, and secularism.
- Ensuring quality education for all children.
- Building a citizenry committed to democratic practices, values, sensitivity towards gender justice, problems faced by the Scheduled Castes and the Scheduled Tribes, needs of the disabled, and capacities to participate in economic and political processes.

CHAPTER 2

- Reorientation of our perception of learners and learning.
- Holistic approach in the treatment of learners' development and learning.
- Creating an inclusive environment in the classroom for all students.
- Learner engagement for construction of knowledge and fostering of creativity.
- Active learning through the experiential mode.
- Adequate room for voicing children's thoughts, curiosity, and questions in curricular practices.
- Connecting knowledge across disciplinary boundaries to provide a broader frame work for insightful construction of knowledge.
- Forms of learner engagement — observing, exploring, discovering, analysing, critical reflection, etc. — are as important as the content of knowledge.
- Activities for developing critical perspectives on socio-cultural realities need to find space in curricular practices.
- Local knowledge and children's experiences are essential components of text books and pedagogic practices.
- Children engaged in undertaking environment-related projects may contribute to generation of knowledge that could help create a transparent public database on India's environment.
- The school years are a period of rapid development, with changes and shifts in

children's capabilities, attitudes and interests that have implications for choosing and organising the content and process of knowledge.

CHAPTER 3

Language

- Language skills — speech and listening, reading and writing — cut across school subjects and disciplines. Their foundational role in children's construction of knowledge right from elementary classes through senior secondary classes needs to be recognised.
- A renewed effort should be made to implement the three-language formula, emphasising the recognition of children's home language(s) or mother tongue(s) as the best medium of instruction. These include tribal languages.
- English needs to find its place along with other Indian languages.
- The multilingual character of Indian society should be seen as a resource for the enrichment of school life.

Mathematics

- Mathematisation (ability to think logically, formulate and handle abstractions) rather than 'knowledge' of mathematics (formal and mechanical procedures) is the main goal of teaching mathematics.
- The teaching of mathematics should enhance children's ability to think and reason, to visualise and handle abstractions, to formulate and solve problems. Access to quality mathematics education is the right of every child.

Science

- Content, process and language of science teaching must be commensurate with the learner's age-range and cognitive reach.
- Science teaching should engage the learners in acquiring methods and processes that will nurture their curiosity and creativity, particularly in relation to the environment.
- Science teaching should be placed in the wider context of children;s environment to equip them with the requisite knowledge and skills to enter the world of work.
- Awareness of environmental concerns must permeate the entire school curriculum.

Social Sciences

- Social science content needs to focus on conceptual understanding rather than lining up facts to be memorised for examination, and should equip children with the ability to think independently and reflect critically on social issues.
- Interdisciplinary approaches, promoting key national concerns such as gender, justice, human rights, and sensitivity to marginalised groups and minorities.
- Civics should be recast as political science, and the significance of history as a shaping influence on the children's conception of the past and civic identity should be recognised.

Work

- School curricula from the pre-primary stage to the senior secondary stage need to be reconstructed to realise the pedagogic potential of work as a pedagogic medium in knowledge acquisition, developing values and multiple-skill formation.

Art

- Arts (folk and classical forms of music and dance, visual arts, puppetry, clay work, theatre, etc.) and heritage crafts should be recognised as integral components of the school curriculum.
- Awareness of their relevance to personal, social, economic and aesthetic needs should be built among parents, school authorities and administrators.
- The arts should comprise a subject at every stage of school education.

Peace

- Peace-oriented values should be promoted in all subjects throughout the school years with the help of relevant activities.
- Peace education should form a component of teacher education.

Health and Physical Education

- Health and physical education are necessary for the overall development of learners. Through health and physical education programmes (including yoga), it may be possible to handle successfully the issues of enrolment, retention and completion of school.

Habitat and Learning

- Environmental education may be best pursued by infusing the issues and concerns of the environment into the teaching of different disciplines at all levels while ensuring that adequate time is earmarked for pertinent activities.

CHAPTER 4

- Availability of minimum infrastructure and material facilities, and support for planning a flexible daily schedule, are critical for improved teacher performance.
- A school culture that nurtures children's identities as 'learners' enhances the potential and interests of each child.
- Specific activities ensuring participation of all children — abled and disabled — are essential conditions for learning by all.
- The value of self-discipline among learners through democratic functioning is as relevant as ever.
- Participation of community members in sharing knowledge and experience in a subject area helps in forging a partnership between school and community.
- Reconceptualisation of learning resources in terms of
  - textbooks focused on elaboration of concepts, activities, problems and exercises encouraging reflective thinking and group work.
  - supplementary books, workbooks, teachers' handbooks, etc. based on fresh thinking and new perspectives.

- multimedia and ICT as sources for two-way interaction rather than one-way reception.
- school library as an intellectual space for teachers, learners and members of the community to deepen their knowledge and connect with the wider world.

- Decentralised planning of school calendar and daily schedule and autonomy for teacher professionalism practices are basic to creating a learning environment.

CHAPTER 5

- Quality concern, a key feature of systemic reform, implies the system's capacity to reform itself by enhancing its ability to remedy its own weaknesses and to develop new capabilities.
- It is desirable to evolve a common school system to ensure comparable quality in different regions of the country and also to ensure that when children of different backgrounds study together, it improves the overall quality of learning and enriches the school ethos.
- A broad framework for planning upwards, beginning with schools for identifying focus areas and subsequent consolidation at the cluster and block levels, could form a decentralised planning strategy at the district level.
- Meaningful academic planning has to be done in a participatory manner by headmasters and teachers.
- Monitoring quality must be seen as a process of sustaining interaction with individual schools in terms of teaching–learning processes.
- Teacher education programmes need to be reformulated and strengthened so that the teacher can be an :
  - encouraging, supportive and humane facilitator in teaching–learning situations to enable learners (students) to discover their talents, to realise their physical and intellectual potentialities to the fullest, to develop character and desirable social and human values to function as responsible citizens; and
  - active member of a group of persons who make conscious efforts for curricular renewal so that it is relevant to changing social needs and the personal needs of learners.
- Reformulated teacher education programmes that place thrust on the active involvement of learners in the process of knowledge construction, shared context of learning, teacher as a facilitator of knowledge construction, multidisciplinary nature of knowledge of teacher education, integration theory and practice dimensions, and engagement with issues and concerns of contemporary Indian society from a critical perspective.
- Centrality of language proficiency in teacher education and an integrated model of teacher education for strengthening professionalisation of teachers assume significance.
- In-service education needs to become a catalyst for change in school practices.
- *The Panchayati Raj* system should be strengthened by evolving a mechanism to regulate the functioning of parallel bodies at the village level so that democratic participation in development can be realised.
- Reducing stress and enhancing success in examinations necessitate:
  - a shift away from content-based testing to problem solving skills and understanding. The prevailing typology of questions asked needs a radical change.
  - a shift towards shorter examinations.

- an examination with a 'flexible time limit'.
- setting up of a single nodal agency for coordinating the design and conduct of entrance examinations.

- Institutionalisation of work-centred education as an integrated part of the school curriculum from the pre-primary to the +2 stage is expected to lay the necessary foundation for reconceptualising and restructuring vocational education to meet the challenges of a globalised economy.
- Vocational Education and Training (VET) need to be conceived and implemented in a mission mode, involving the establishment of separate VET centres and institutions from the level of village clusters and blocks to sub-divisional/district towns and metropolitan areas in collaboration with the nation wide spectrum of facilities already existing in this sector.
- Availability of multiple textbooks to widen teachers' choices and provide for the diversity in children's needs and interests.
- Sharing of teaching experiences and diverse classroom practices to generate new ideas and facilitate innovation and experimentation.
- Development of syllabi, textbooks and teaching-learning resources could be carried out in a decentralised and participatory manner involving teachers, experts from universities, NGOs and teachers' organisations.

भारतेन्द्र सिंह बसवान
शिक्षा सचिव
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EDUCATION SECRETARY

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21-7-2004

Dear Professor Dixit,

The National Policy on Education 1986, as modified in 1992, envisages the following:

"11.5 The implementation of the various parameters of the New Policy must be reviewed every five years. Appraisals at short intervals will also be made to ascertain the progress of implementation and trends emerging from time to time".

2. The Programme of Action (POA) 1992, prepared under the National Policy on Education 1986 lays down some of the concerns to be addressed through the review. Your attention is drawn to Chapter 8 of the POA.

3. Since the present curriculum framework was released four years ago, it is time to initiate the process of review and renewal of the curriculum. The NCERT may initiate action for curriculum renewal.

4. While undertaking the review, you may kindly ensure that the processes as laid down or that have evolved over a period of time, are not violated. You are aware of the criticism regarding the short-circuiting and the inadequacies of procedures followed during the finalisation of the earlier review.

5 The textbooks of the NCERT have drawn serious academic criticism during the last few years. You are already in the process of handling the controversy regarding the History books. While understating the present review, you may like to address the question of how the books emanating from a new curriculum framework could be insulated from such distortions.

6. While undertaking the review, we are sure you would take into account the Yashpal Committee report on 'Learning Without Burden' and Chapter 8 of the POA.

7. The NCFSE should always be in harmony with the idea of India, as enshrined in its Constitution. It could be worthwhile to keep reminding everyone associated with the

review of the following words in which the noble idea of India has been given in the Preamble to the Constitution:

> "**WE, THE PEOPLE OF INDIA**, having solemnly resolved to constitute India into a **SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC** and to secure to all its citizens:
>
> **JUSTICE**, social, economic and political;
>
> **LIBERTY** of thought, expression, belief, faith and worship;
>
> **EQUALIT**Y of status and of opportunity;
>
> and to promote among them all
>
> **FRATERNITY** assuring the dignity of the individual and the unity and integrity of the **Nation**....."

8. We are confident that the formulation of the new NCFSE will generate enthusiasm among the academic community and the wider civil society. You may accordingly set in motion all the attendant activities for this purpose.

With regards and best wishes for this venture.

sd/-
[B.S. Baswan]

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सत्यमेव जयते

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D.O.No.11-17/2004-Sch.4 **2 May, 2005**

Dear Professor Krishna Kumar,

Kindly recollect the discussions we had on the National Curriculum Framework for School Education (NCFSE). In this regard please refer to my D.O. letter of even number dated 21.7.2004 regarding initiating the process of review and the renewal of the National Curriculum Framework for School Education (NCFSE)-2000. I had mentioned in para 6 of this letter to take into account the Yash Pal Committee report on "Learning Without Burden", while undertaking the review of NCFSE-2000. Now that the National Curriculum Framework has been prepared by the NCERT, we hope that, while preparing the textbooks based on the new curriculum, the principles underlined in the 'Learning Without Burden' report will be fully taken into account.

With regards and best wishes.

sd/-
(B.S. BASWAN)

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INDEX

Activity	viii, 2, 4, 10, 12, 21, 22, 26, 29, 34, 46, 55, 58–60, 61, 66, 79, 82, 88, 95, 102, 105, 107, 111, 112, 123.
Adolescent	16, 51, 57.
Adult	vii, xviii, 12–14, 105, 124, 125.
Aesthetic	x, 11, 16, 29, 31, 35, 37, 55, 56, 68, 75, 100, 108.
Aim	viii, 10, 29, 33, 37, 39, 42, 45, 51, 88, 98, 111.
Arts	ix, x, 11, 15, 22, 28, 30, 31, 35, 54–56, 69, 70, 99–100.
Assessment	xi, xvi, 25, 28, 4,0 48, 60, 65–66, 71–76, 115, 116.
Attitude	42, 44, 62.
Biology	64,70.
Calendar	79, 116.
Capability	12, 26, 30.
Chemistry	64.
Childhood	vii, xviii, 4, 5, 12, 60, 65–66, 124.
Citizenship	7, 9.
Classical	31, 36, 37, 40, 41.
Cognitive	37, 39, 44, 47, 48, 75, 88.
Collaborative learning	20.
Commerce	53, 69.
Collaborative learning	112.
Commission	3, 7, 8, 15, 81, 89, 102, 103, 107, 111.
Commitment	1, 2, 5, 7, 11, 23, 58, 62, 63, 121.
Common core	4, 5.
Common School System	iv, 15, 103.
Community	iii, ix, xi, 8–10, 13, 14, 20, 33, 39, 41, 78, 84–86, 89–93, 95–96, 104, 109, 112, 119, 120, 121.
Computer Science	45, 46.

Concurrent List 3.

Constitution 3, 7, 9, 37, 49, 53, 86, 89.

Construction of knowledge 17.

Continuous and Comprehensive Evaluation (CCE) 73, 76, 115.

Corporal punishment 13, 14, 90,

Crafts ix, x, 5, 22, 31, 32, 55, 56, 92, 98, 100, 118, 125.

Creative iii, vii, xi, xviii, 2, 3, 6, 10, 11, 13, 38, 54, 55, 60, 67, 68, 80–81, 97–98, 106, 116, 120, 121, 125.

Cultural 13, 18, 23, 29, 36, 38, 52, 54, 55, 62, 82, 83, 85, 89, 93, 103, 108, 110, 117, 122.

Curriculum load iii, 2, 4, 14, 49.

Dance x, 15, 55, 56, 64.

Decentralisation 5, 24, 67, 101.

Democracy 5, 7, 8, 23, 62, 85, 86, 92, 105, 120.

DIETs 106, 111–114, 120, 122.

Disabilities 5, 11, 18, 23, 38, 66, 84.

Discipline 13–15, 24, 29, 31, 32, 42, 45, 49, 59, 89, 90, 109, 114, 116.

Diversity 1, 4–7, 9, 13, 23, 36, 51, 54, 62, 83, 84, 102, 119, 120, 122, 125.

Drama 38, 95.

Drawing 21, 31, 51, 54, 61, 81, 95–96.

Duties 7, 63.

ECCE viii, 65–67, 76.

Economics 50, 53, 55.

Educational Technology 97, 102.

Egalitarianism 5, 86.

Elementary viii, xi, 2, 5, 25, 40, 57, 66–68, 76, 99, 122.

English v, ix, xviii, 38–40, 66, 67, 69, 98, 100, 113, 115.

Enquiry 51.

Environment iv, viii, ix, xi, 3, 5, 6, 9, 13, 17, 21, 23, 24, 28, 31, 52–54, 57, 62–67, 79, 80, 83, 86, 92–94, 99, 103, 104, 110, 115, 118, 120, 121.

Equality vii, 7, 23, 25, 34, 51, 53, 62, 82–83, 86, 90, 102, 120.

Equipment 57, 83, 96–97, 99, 101, 103, 112.

Equity 49, 83.

Ethics 5, 26, 28, 63, 64.

Ethos viii, x, 3, 6, 8, 89, 96, 124.

Evaluation xi, 14, 24, 27, 34, 40, 60, 61, 71–73, 75–77, 92, 111, 113–117, 122, 124–125.

EVS 52.

Facilitator 19, 89, 107, 109, 114.

Faith 7, 8.

Flexibility vii, 4, 21, 23, 24, 46, 60, 67, 75, 102–105, 115.

Fraternity 7, 53, 86.

Freedom iv, xviii, 3, 5, 9, 10, 40, 48, 51, 53, 118.

Furniture 13, 81–83.

Games xviii, 15, 23, 30, 44, 57, 58, 76.

Gender viii, 5, 9,17, 21, 23, 25, 28, 49, 51–53, 59, 66, 83, 85, 94, 99, 103, 110.

Geography 50-51, 53–55.

Globalisation 5, 9.

Grades 22, 42, 48, 52, 76, 97, 122.

Guiding Principles viii, 4, 10, 120.

Habitat 57, 64, 94, 116.

Health and physical education ix, x. 15, 35, 56, 57, 64, 123.

Heritage ix, x, 5, 7, 24, 32, 38, 55–56, 98.

Higher Secondary 43, 45, 57.

HIV/AIDS 17, 57, 58.

Home language 36–38, 92, 103.

Home work 96.

Human Rights 9, 23, 51, 62, 84.

Information and Communication Technology (ICT) 49.

Inclusive viii, 13, 14, 17, 26, 55, 68, 84, 99, 100, 103, 117, 122.

Independence vii, 1, 3, 11, 17,24, 54, 104.

In-service 40–41, 102, 107, 111–114, 121–122.

Justice vii, ix, 7, 9, 10, 29, 61, 83, 85, 86, 103, 105, 123.

Kothari Commission 15, 51, 81, 89, 103, 107.

Language Education 36, 38, 40, 41.

Learning Without Burden vii, 2–4.

Liberty 7, 53, 86.

Libraries 39, 41, 70, 90, 91.

Literacy 2, 36-37, 39, 45, 67, 71–72, 99.

Literature 38, 70.

Mariginalisd ix, 6, 60.

Marks iii, 48, 67–68, 75–76, 88, 111, 114, 115, 124.

Material viii, 2, 38, 41,–42, 54, 56, 60, 73, 92, 94, 96, 98, 99, 102, 118.

Mathematics xv, 23, 25, 32, 33, 38, 40, 42, 79, 86, 94, 98, 99, 113.

Mathematics Laboratories 45.

Mental representation 20.

Minority ix, 37, 42, 83–84.

Modern xviii, 37, 45,–46, 53.

Moral 7, 14, 16, 23, 28, 30, 51, 63, 124.

Morning assembly 78, 96.

Mother tongue iii, ix, 3, 8, 36, 37, 67, 92.

Motivation 42, 61, 66, 75, 87, 102.

Multicultural 2, 7.

Multigrade Class 96, 98.

Multigrade Schools 9.

Multilingualism 36–37.

Music x, 41, 55–56, 64, 66, 73, 96.

Nai Talim 3.

National Identity 5, 7.

National Integration 4.

National policy on education vii, 1, 4, 5.

National System of Education 103.

Native wisdom 5.

National Curriculum Framework for School Education,1988 4.

Norms xi, 17, 62–63, 71, 82–84, 89, 102, 104, 105, 121.

Panchayti Raj 5.

Paradigm ix, 85, 111, 115.

Parents iii, v, vi, xi, 9, 21, 46, 51, 55, 57, 62,–63, 72, 77 113, 120, 124–125.

Participation vii, xi, 9, 10, 13, 15, 27, 50, 53, 74, 83, 85–88, 92–93, 104, 105, 110, 122.

Peace ix, x, 2, 5, 6, 9, 35, 61–64, 99.

Pedagogy ix, 13, 23, 28, 41, 48, 53, 60, 65, 71, 80, 92, 107, 113, 116.

Physics 64, 70.

Play xviii, 6, 13, 15, 21, 23, 26, 34, 35, 41,–43, 46, 54, 58, 59, 67, 78, 81, 90, 94, 104, 106, 109, 111, 114, 121, 122.

Plurality iii, viii, 3, 53, 66, 67, 100, 103, 122.

Political Science 50–51, 53, 65.

Polity viii, 5, 6, 7, 33, 51.

Practices 5, 10, 13, 21, 27, 31, 33, 46, 58, 66, 75, 81, 82, 84, 85, 90, 101, 102, 105, 106, 111, 112, 114, 120–122, 124.

Pre-primary 44, 56, 60.

Pre-service 41, 57, 102, 107, 111, 113, 114.

Primary 37, 38, 42–44, 57.

Psychology 53.

Professionalisation 102, 108.

Psychomotor 48, 117.

Quality vii, viii, xi, 7, 9, 22, 26, 31, 42, 43, 55, 56, 66, 67, 69, 72, 73, 75, 80–84, 92, 93, 102–106, 112, 114–116, 120–124.

Question iii, xi, 14, 20, 21, 28, 29, 34, 43, 61, 63, 74, 107, 114.

Religion viii, 23, 49, 96.

Rights 23, 52, 62, 81, 83–85, 87, 88, 97.

Rural v, vii, xi, 20, 46, 49, 53, 66, 83, 91–93, 105, 114, 115, 117, 118,

Sanskrit vi, 36, 37.

SC ix, 23, 53, 82, 83.

Science v, viii, ix, xii, xiii, xv, 19, 23, 25, 31, 32, 33, 38, 42, 44, 46, 48, 79, 84, 93, 95, 100, 107, 122, 124, 125.

Scientific Temper 50.

Secondary v, xi, xiv, xvi, xvii, 14, 40, 43, 48, 57, 68, 93, 94, 97, 102, 105, 107, 112, 117, 118, 122.

Secondary Education Commission 94.

Secularism 53, 83 84, 120.

Sharing 14, 20, 30, 61, 88, 89, 113, 119–121.

Skills iv, viii, 14, 15, 20, 21, 23, 25, 27, 30–32, 37–41, 44, 48, 50, 56, 59, 67, 72, 76, 79, 87, 108, 111, 112, 115–119.

Social Science viii, ix, xvi, 25, 32, 50, 51, 53, 112.

Sociology xiii, 50, 53.

ST ix, 2, 23, 82.

Stereotype 17, 23, 96.

Stigmatisation 18.

Syllabi viii, 40, 41, 49, 51, 58, 70, 84, 107, 122, 125.

Teacher Education x, xi, xvii, 6, 39, 40, 56, 57, 64.

Test 21, 72 74, 76, 78, 115, 116.

Textbooks viii, xvii, 2–4, 8, 14, 41, 49, 51, 72–74, 89–90, 92, 94, 95, 102, 103, 119, 120, 122, 124.

Theatre 41, 55, 56.

Time iii, iv, x, xvi, 1, 7, 10, 13, 14, 17, 19, 24, 25, 26, 29, 31, 32, 35, 38, 41, 43, 44, 51, 55–56, 58, 60, 64–65, 71, 73, 74, 76, 103, 113–115, 117–122.

Time Table 98.

University v, xii, xiii, 65, 122.

Urban 9, 10, 46, 53, 66, 106.

Values vii, x, 1, 2, 4, 7, 9, 10, 22, 23, 25, 29, 30, 34, 35, 41, 48, 51–52, 60–64, 66, 102, 107, 108, 116, 120.

Vocational Education and Training (VET) xvii, 117.

Work as a Pedagogic Medium 116.

Work–centered education 101, 116, 117.

Yoga 15, 56–58, 73.